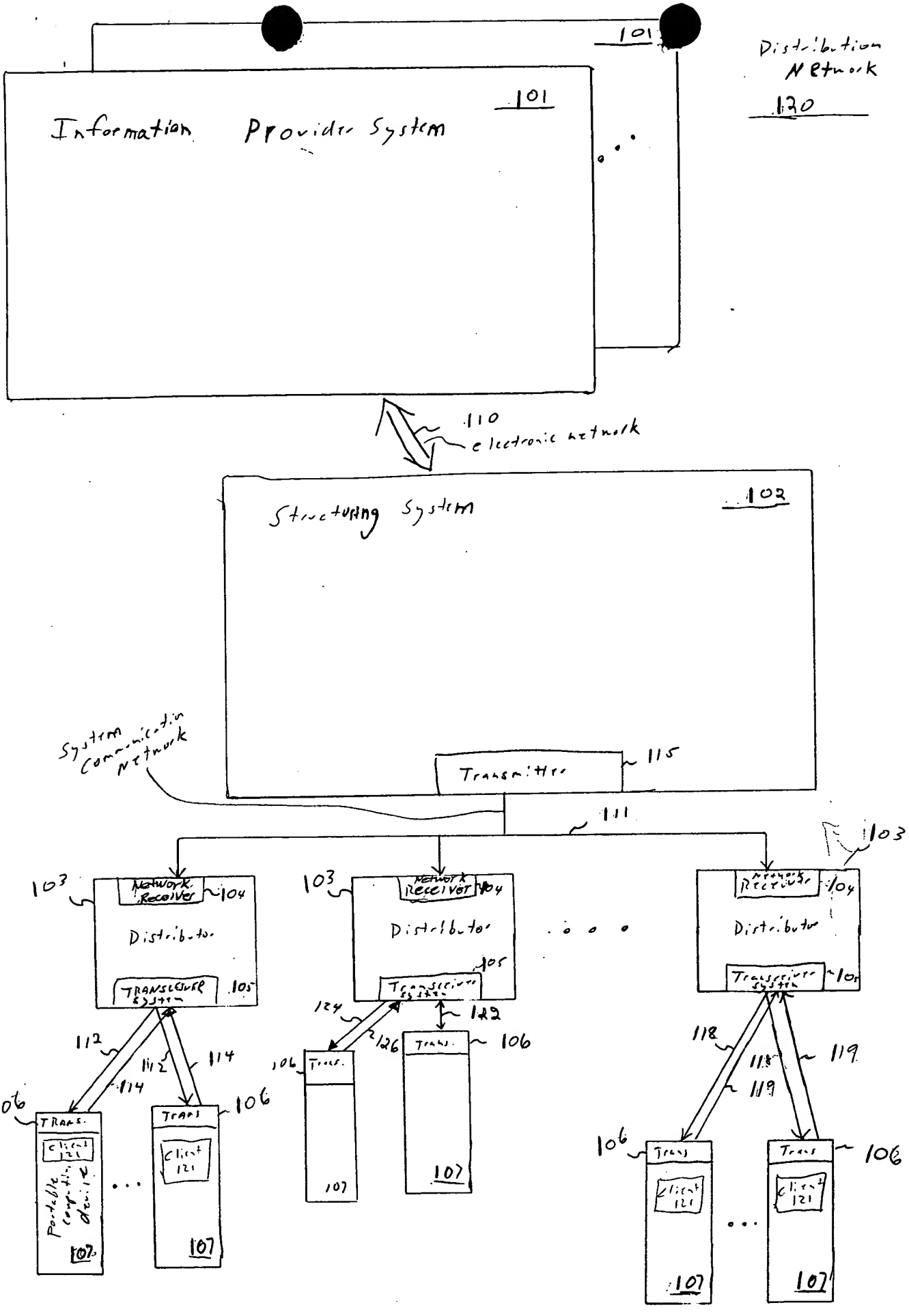

101
Information Provider System
101
Distribution Network
120
110
electronic network
Structuring System
102
System Communication Network
Transmitter
115
111
103
Network Receiver
104
Distributor
TRANSCEIVER SYSTEM
105
112
114
106
TRANS.
Client 121
Portable computing device
107
122
124
126
118
119

FIG. 2

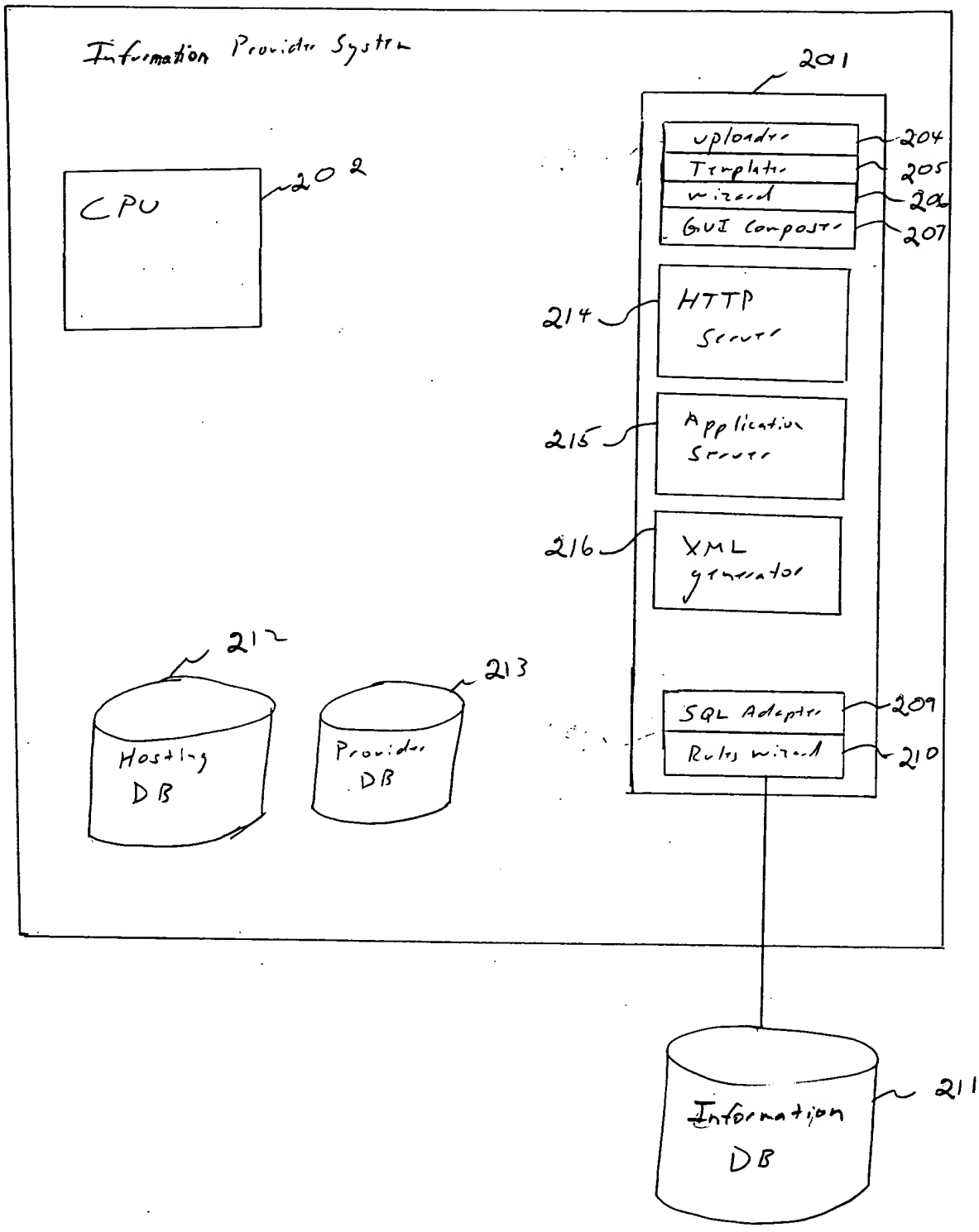

101
Information Provider System
201
CPU
202
uploader
204
Template
205
wizard
206
GUI composer
207
HTTP Server
214
Application Server
215
XML generator
216
SQL Adapter
209
Rules wizard
210
Hosting DB
212
Provider DB
213
Information DB
211

Fig. 2

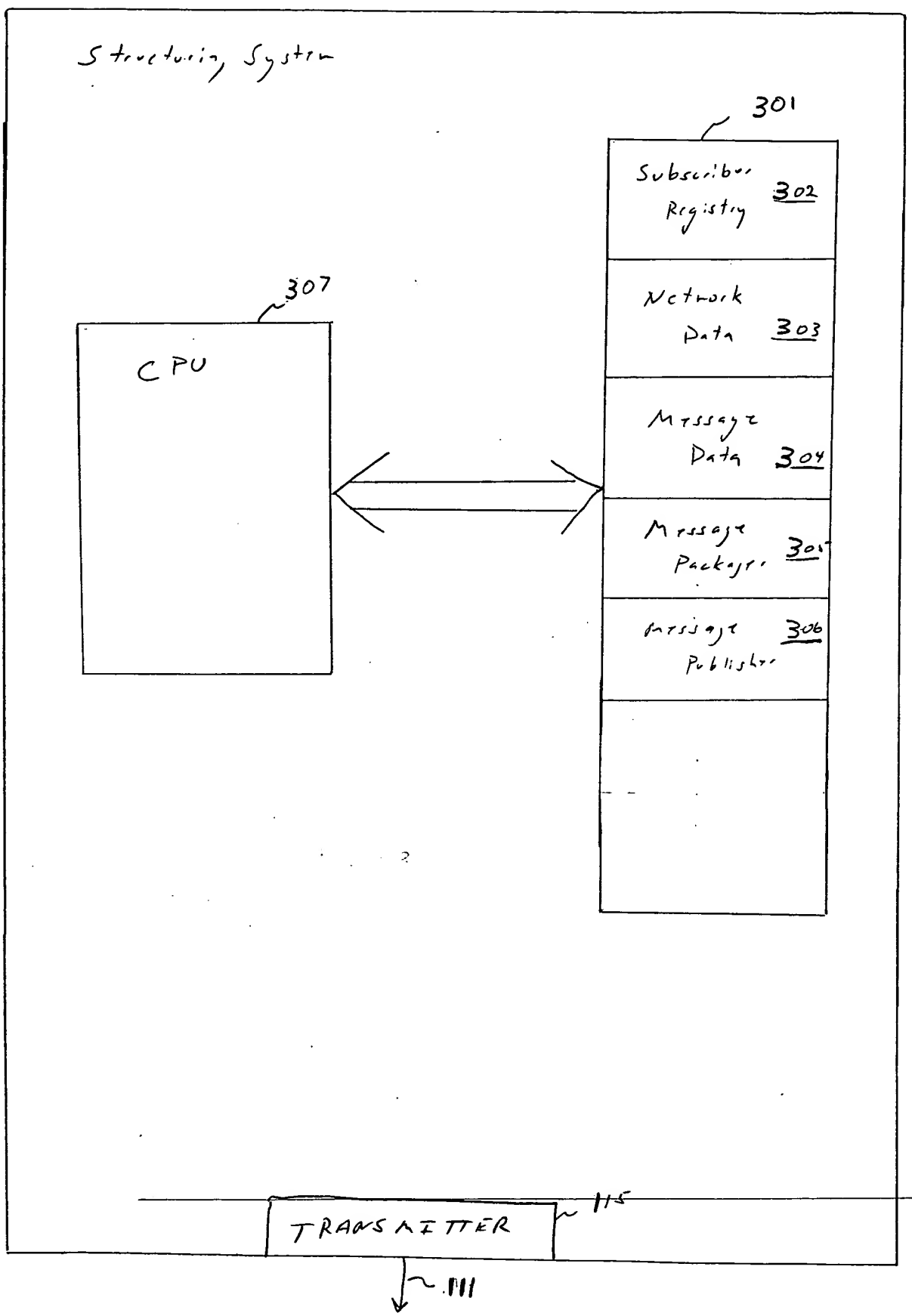

102
Structuring System
301
Subscriber Registry 302
Network Data 303
Message Data 304
Message Packager 305
Message Publisher 306
307
CPU
TRANSMITTER 115
111

FIG. 3

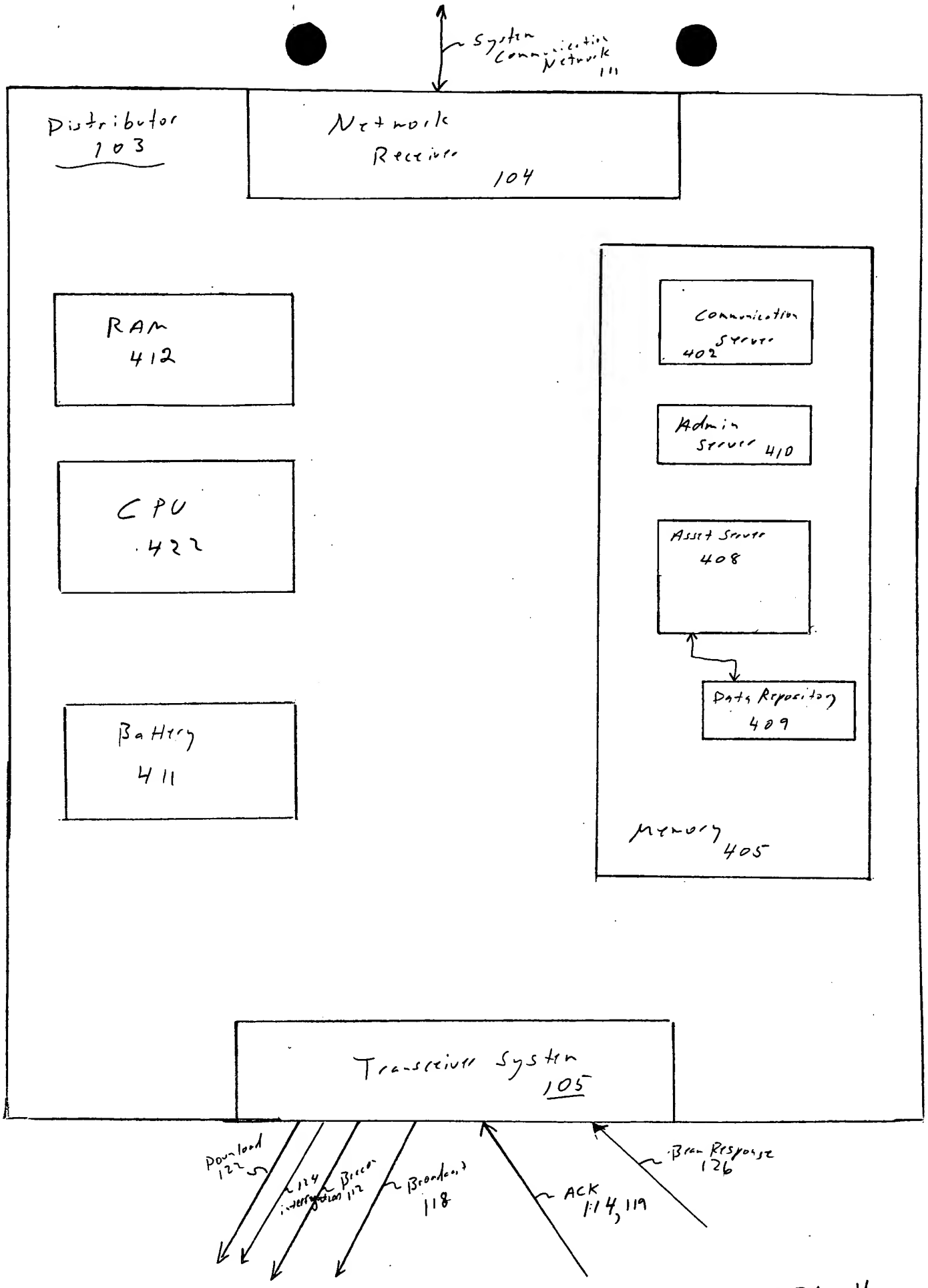

System Communication Network 111
Distributor 103
Network Receiver 104
RAM 412
CPU 422
Battery 411
Communication Server 402
Admin Server 410
Asset Server 408
Data Repository 409
Memory 405
Transceiver System 105
Download 122
Broadcast 118
ACK 114, 119
Beacon Response 126

FIG. 4

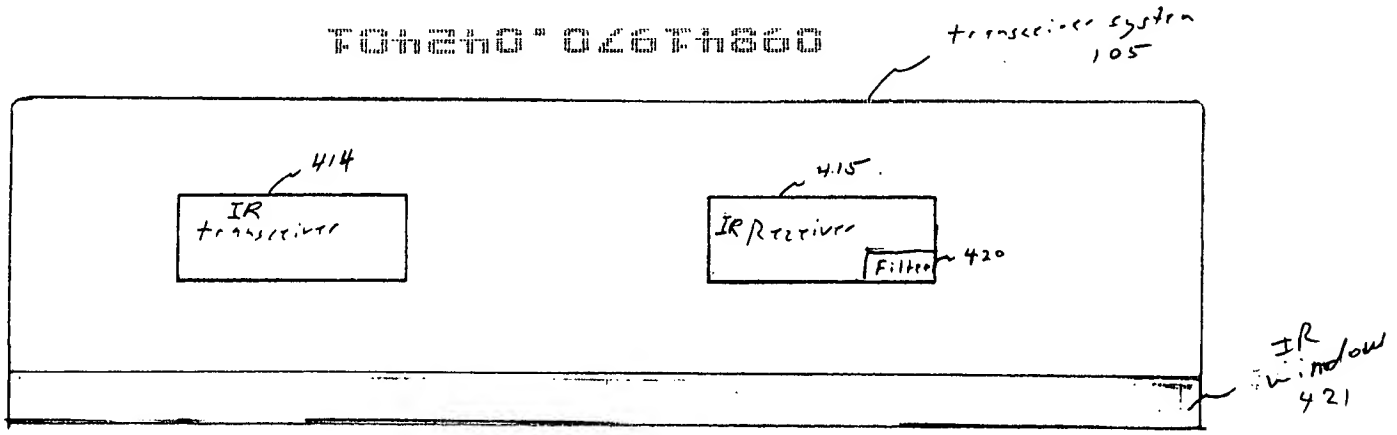

transceiver system
105
414
IR
transceiver
415
IR Receiver
Filter
420
IR
window
421

FIG. 4A

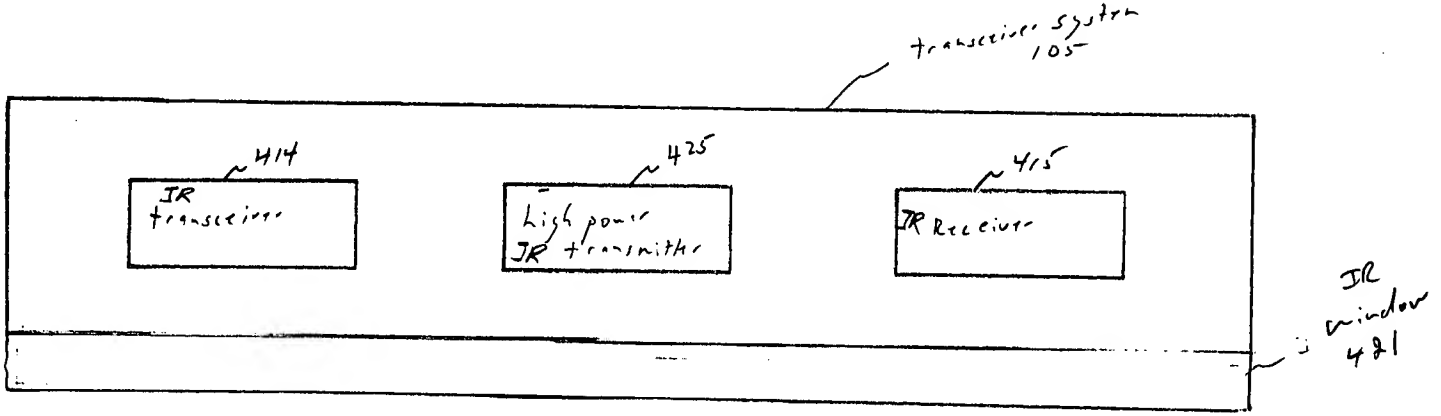

transceiver system
105
414
IR
transceiver
425
Light power
IR transmitter
415
IR Receiver
IR
window
421

FIG. 4B

Tohoku 0267860

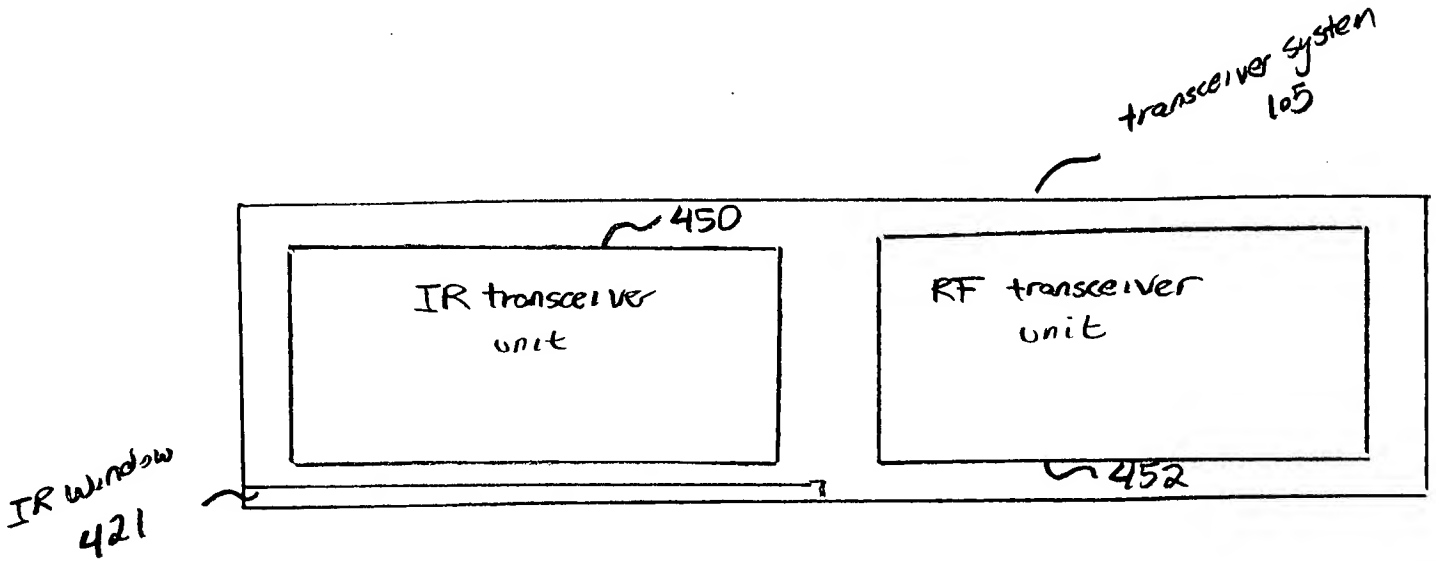


Fig. 4C

Software Architecture for the distributor 103

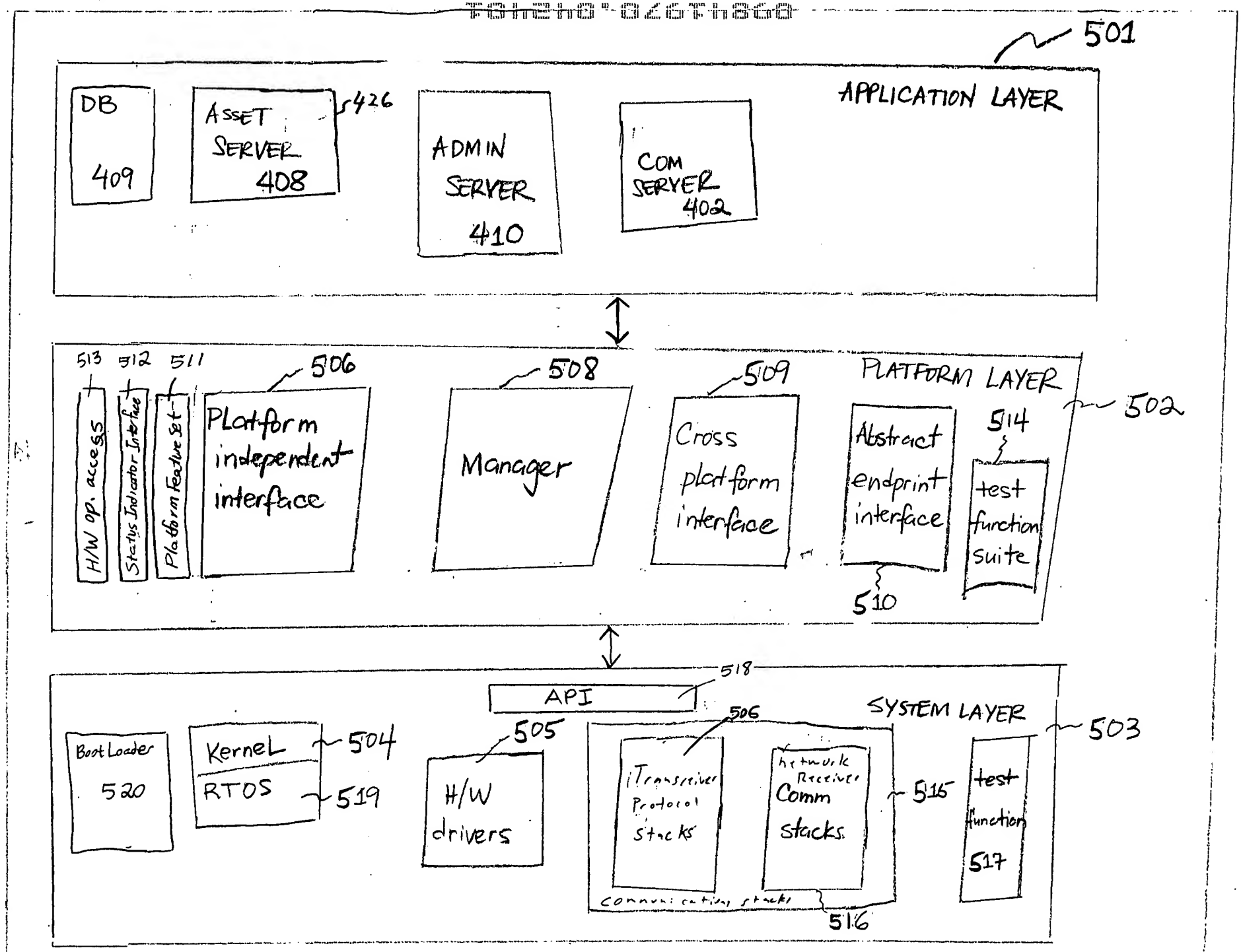


Fig. 5

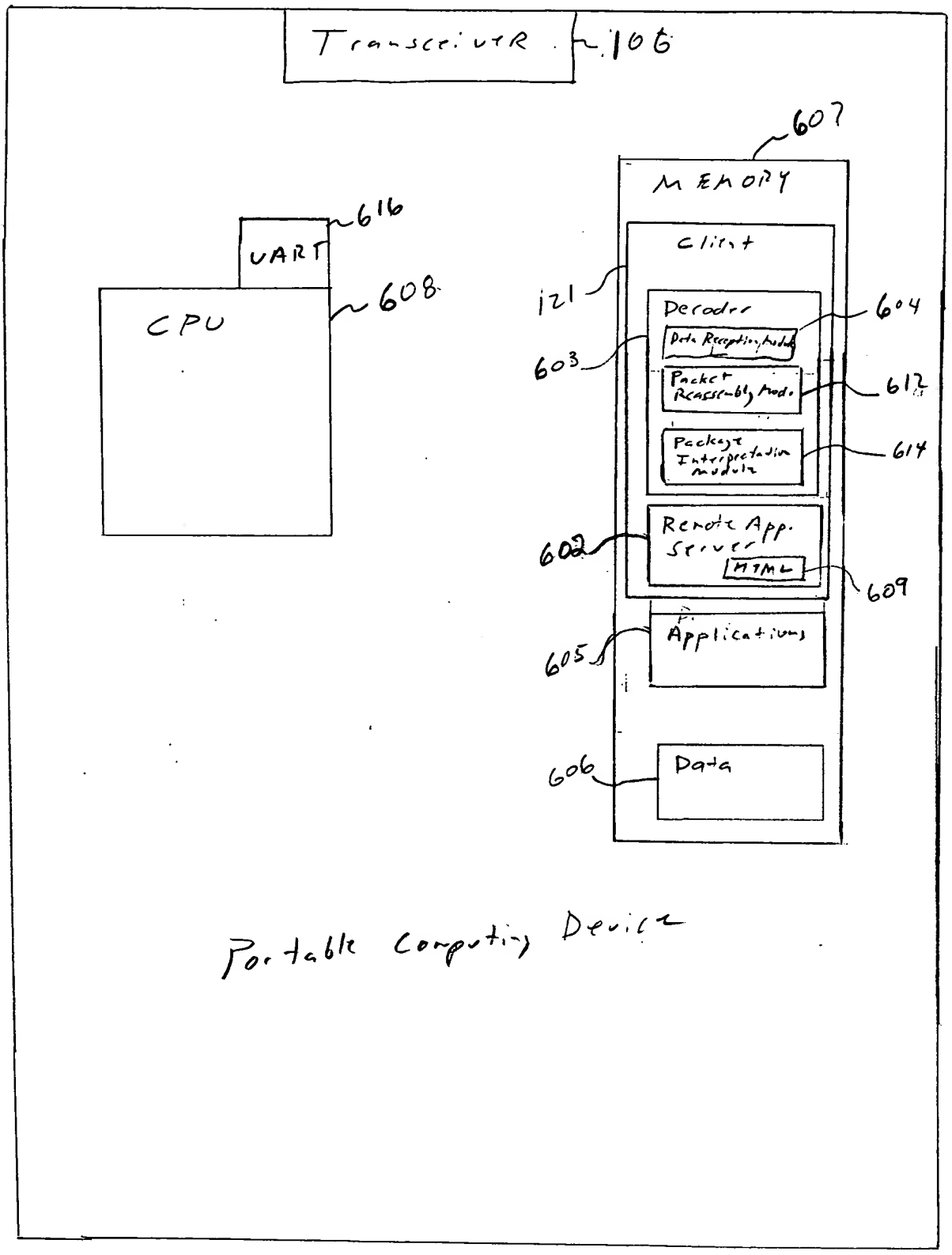

107
Transceiver
106
607
MEMORY
Client
616
UART
608
CPU
121
Decoder
604
603
Data Reception Module
Packet Reassembly Module
617
Packet Interpretation module
614
602
Remote App. Server
HTML
609
605
Applications
606
Data
Portable Computing Device

FIG. 6

602

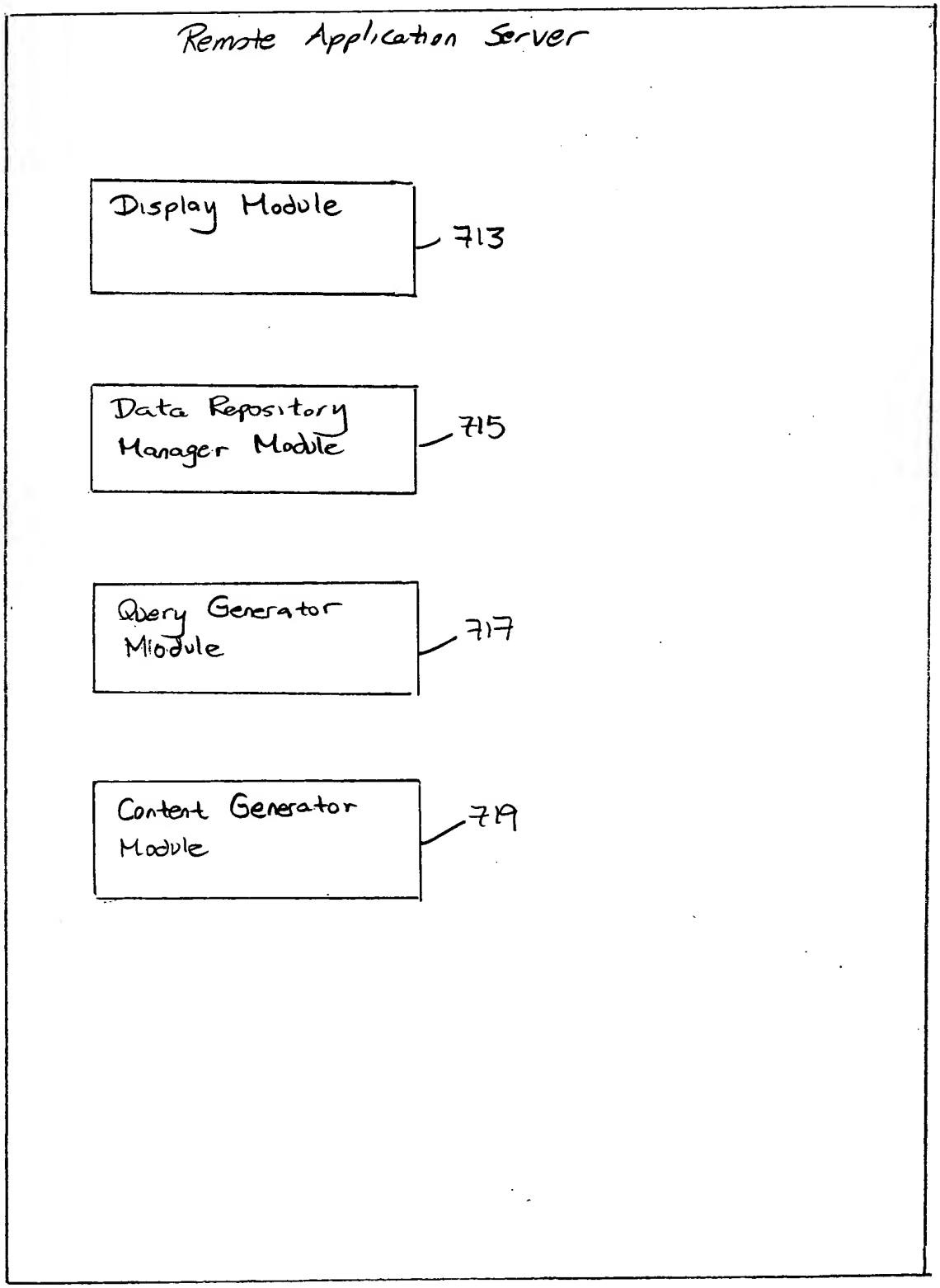

Remote Application Server
Display Module
713
Data Repository Manager Module
715
Query Generator Module
717
Content Generator Module
719

Fig. 7A

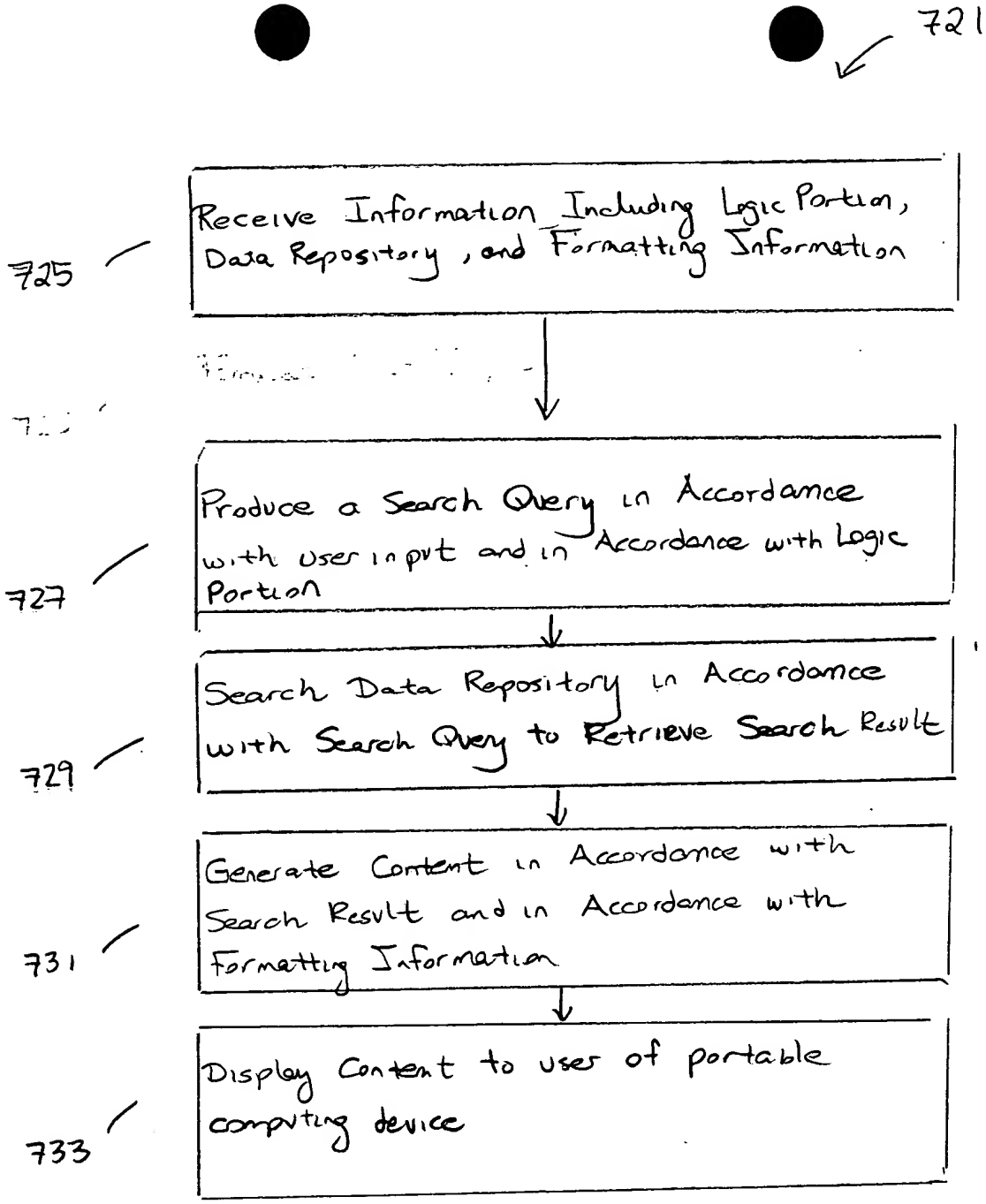

721
725
Receive Information Including Logic Portion, Data Repository, and Formatting Information
727
Produce a Search Query in Accordance with user input and in Accordance with Logic Portion
729
Search Data Repository in Accordance with Search Query to Retrieve Search Result
731
Generate Content in Accordance with Search Result and in Accordance with Formatting Information
733
Display Content to user of portable computing device

Fig. 7B

602

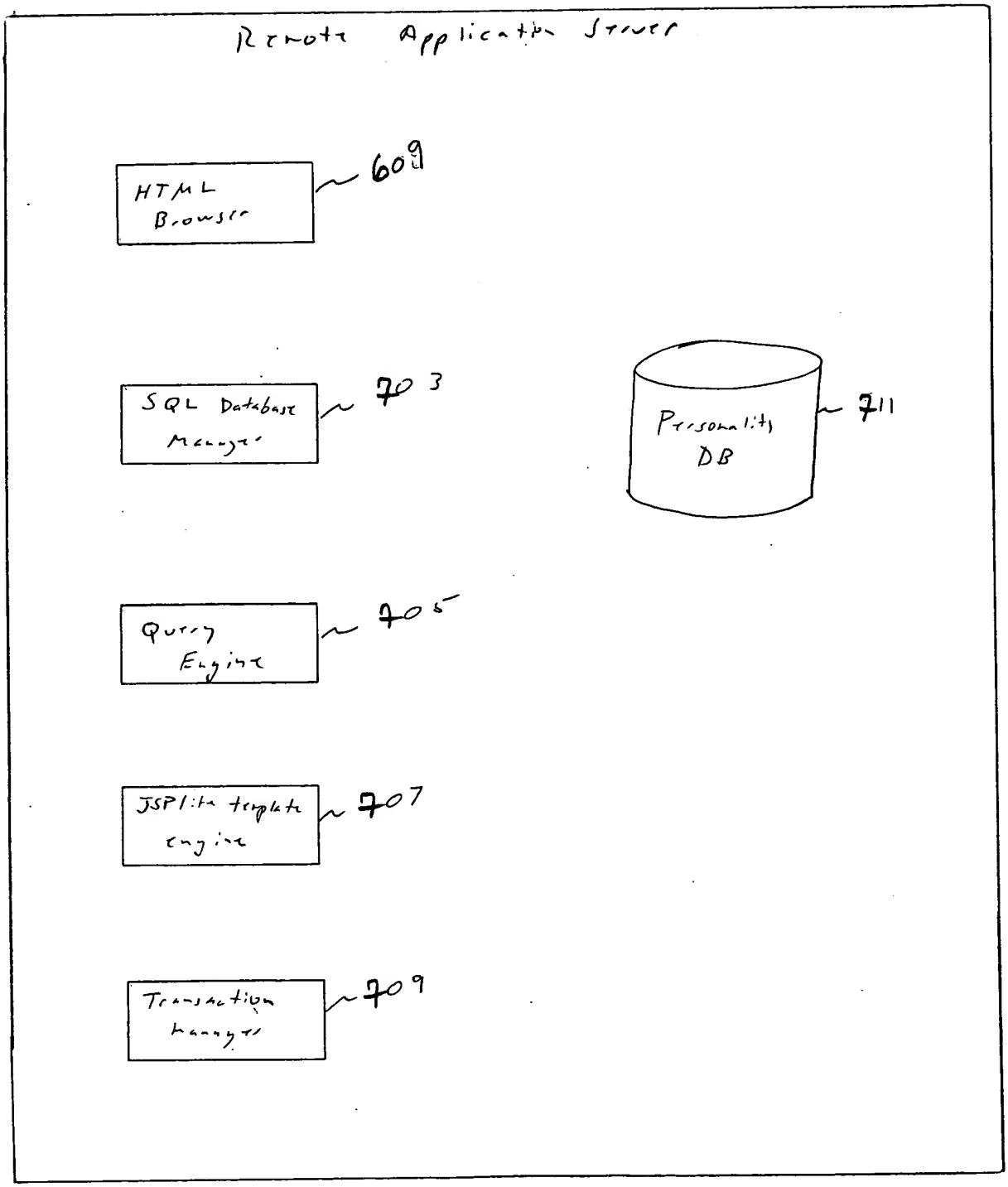

Remote Application Server
HTML Browser
609
SQL Database Manager
703
Personality DB
711
Query Engine
705
JSP like template engine
707
Transaction manager
709

Fig. 7C

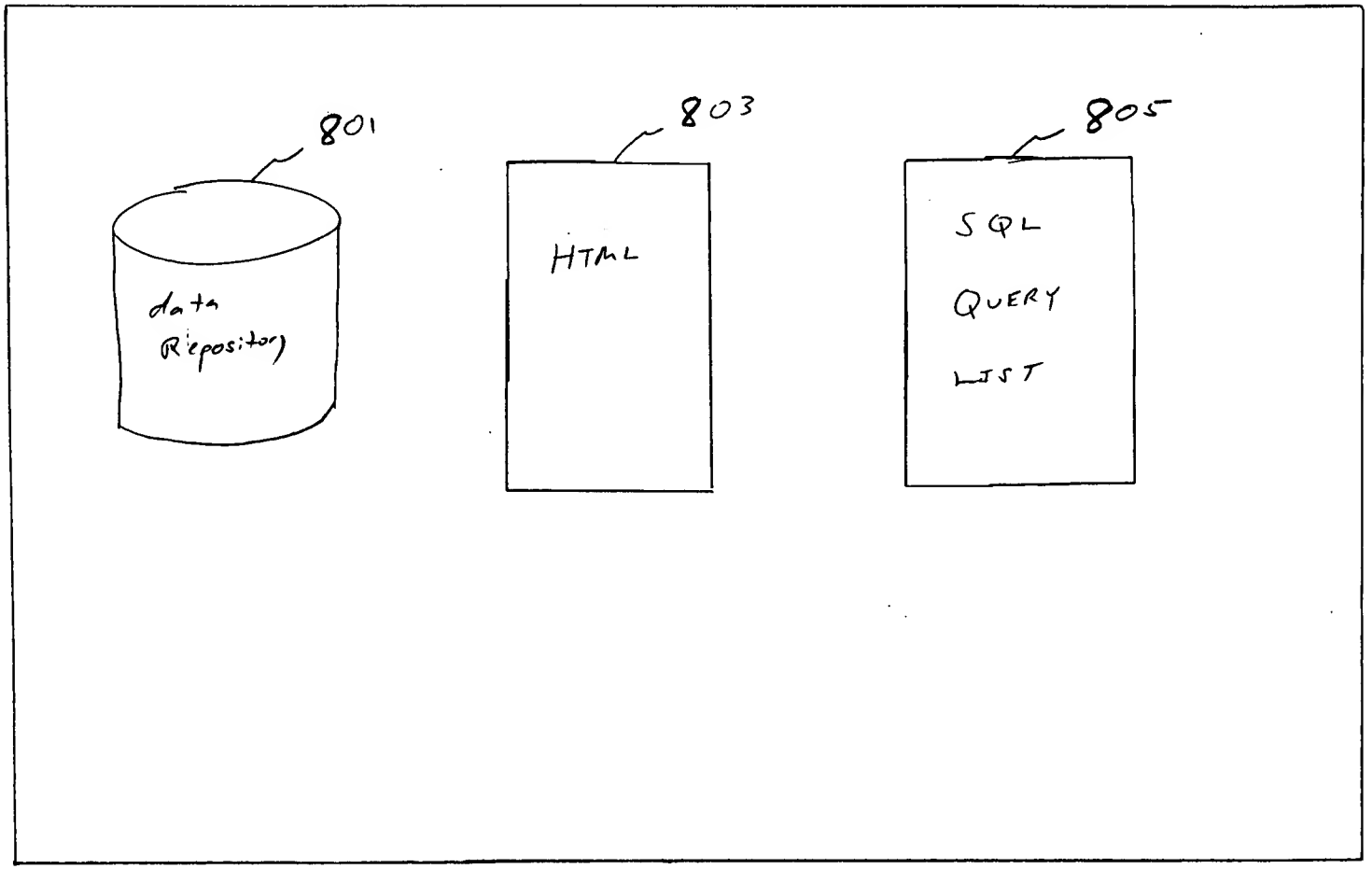


FIG. 8

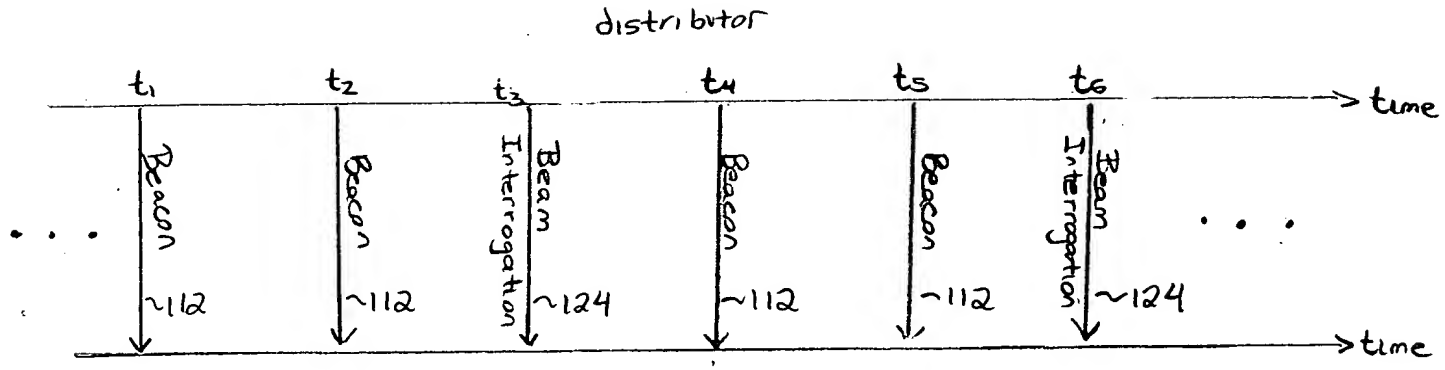

distributor
t1
t2
t3
t4
t5
t6
time
Beacon
~112
Beacon
~112
Interrogation Beam
~124
Beacon
~112
Beacon
~112
Interrogation Beam
~124
time

Fig. 9

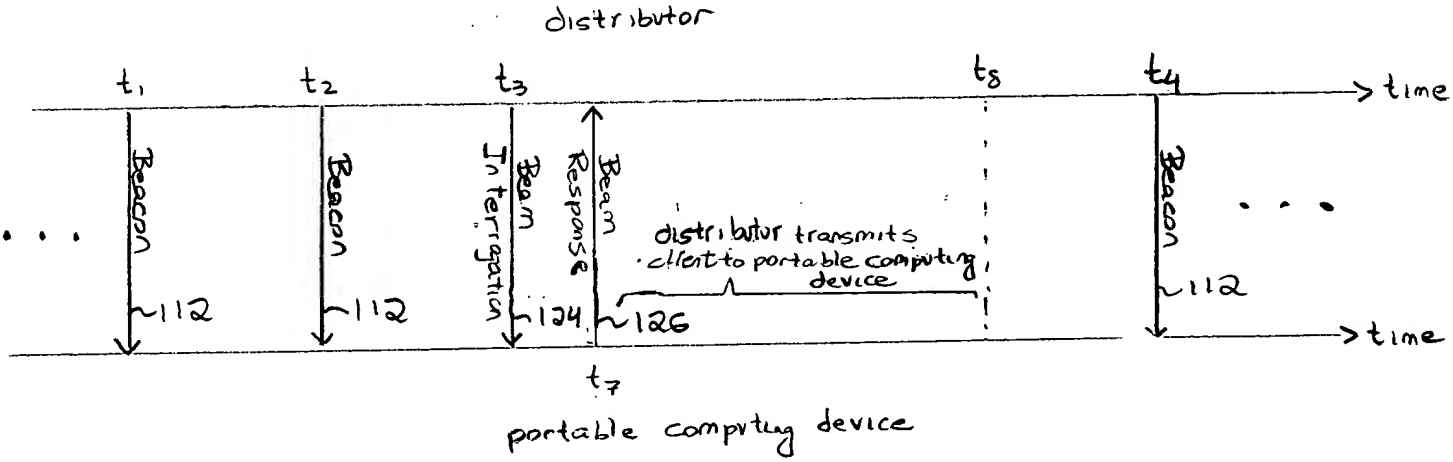

distributor
t1
t2
t3
t8
t4
time
Beacon
~112
Beacon
~112
Interrogation Beam
~124
Response Beam
~126
distributor transmits client to portable computing device
Beacon
~112
time
t7
portable computing device

Fig. 10

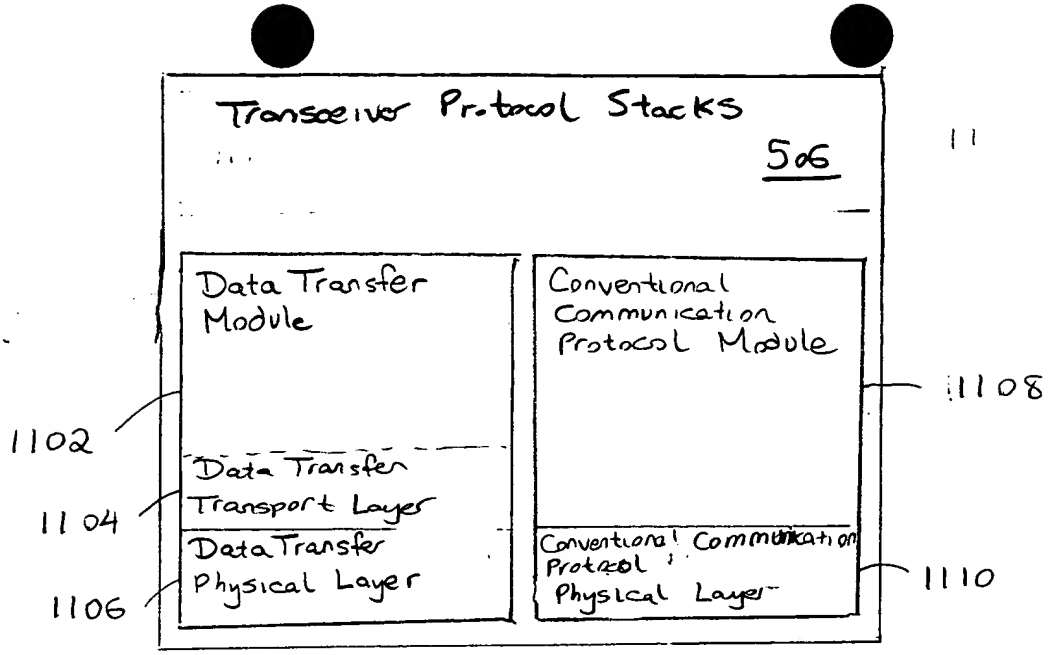

Transceiver Protocol Stacks
506
1102
Data Transfer Module
1104
Data Transfer Transport Layer
1106
Data Transfer Physical Layer
1108
Conventional Communication Protocol Module
1110
Conventional Communication Protocol Physical Layer
Distributor

Fig. 11

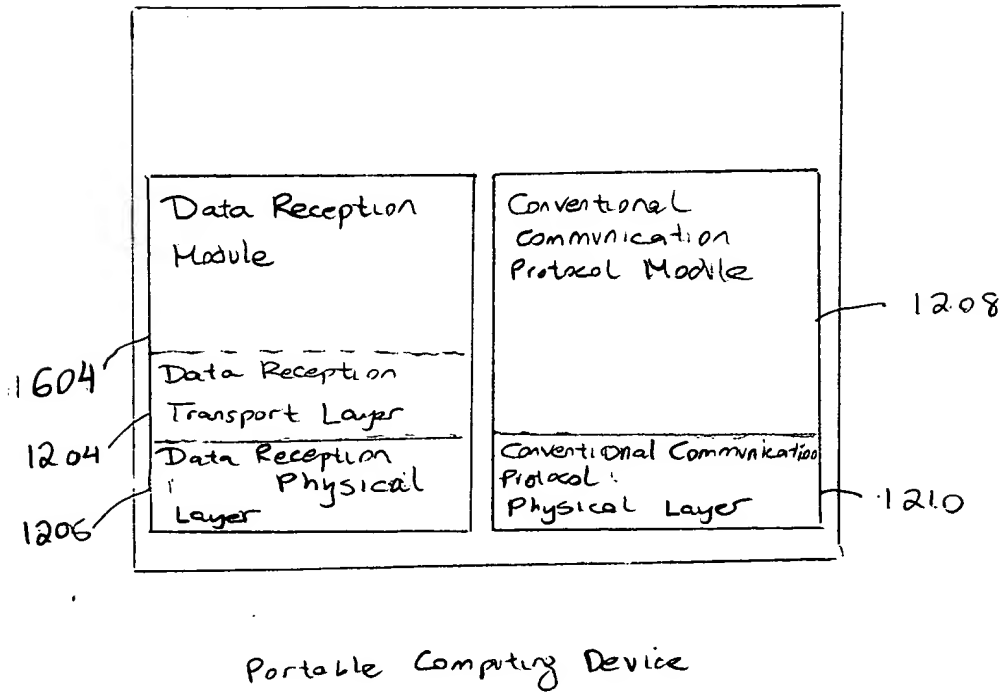

1604
Data Reception Module
1204
Data Reception Transport Layer
1206
Data Reception Physical Layer
1208
Conventional Communication Protocol Module
1210
Conventional Communication Protocol Physical Layer
Portable Computing Device

Fig. 12

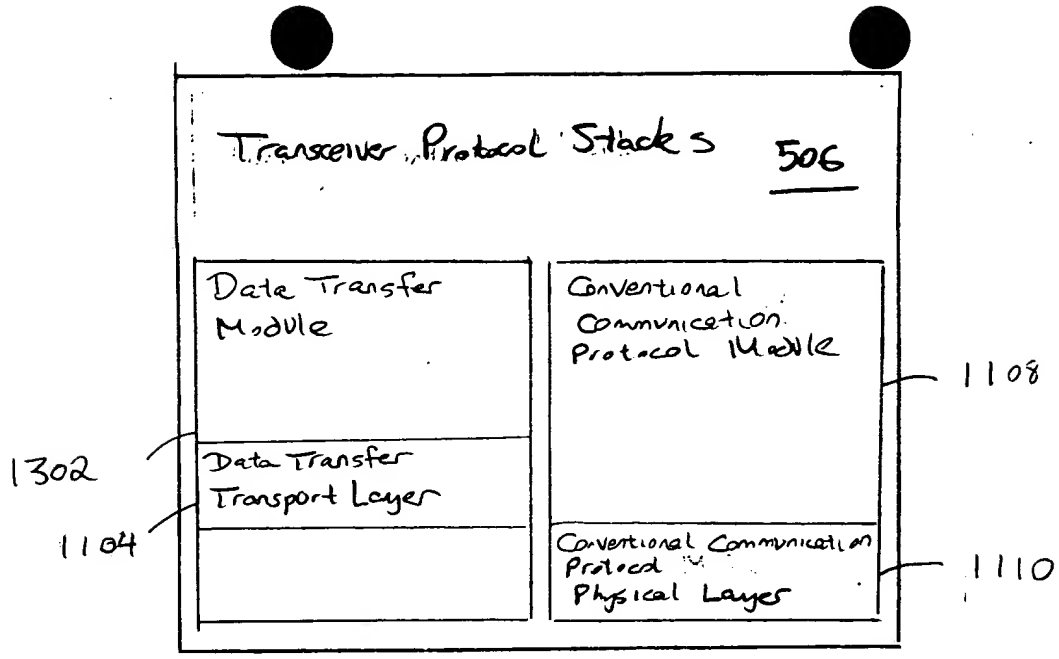

Transceiver Protocol Stacks 506
Data Transfer Module
Conventional Communication Protocol Module
1108
1302
Data Transfer Transport Layer
1104
Conventional Communication Protocol Physical Layer
1110
Distributor

Fig. 13

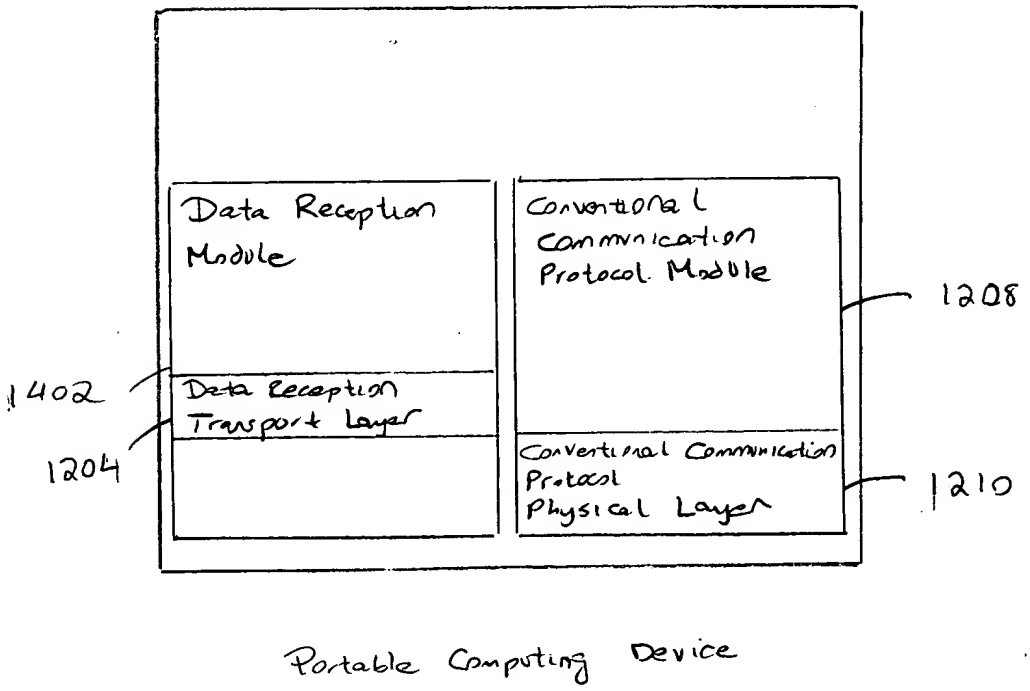

Data Reception Module
Conventional Communication Protocol Module
1208
1402
Data Reception Transport Layer
1204
Conventional Communication Protocol Physical Layer
1210
Portable Computing Device

Fig. 14

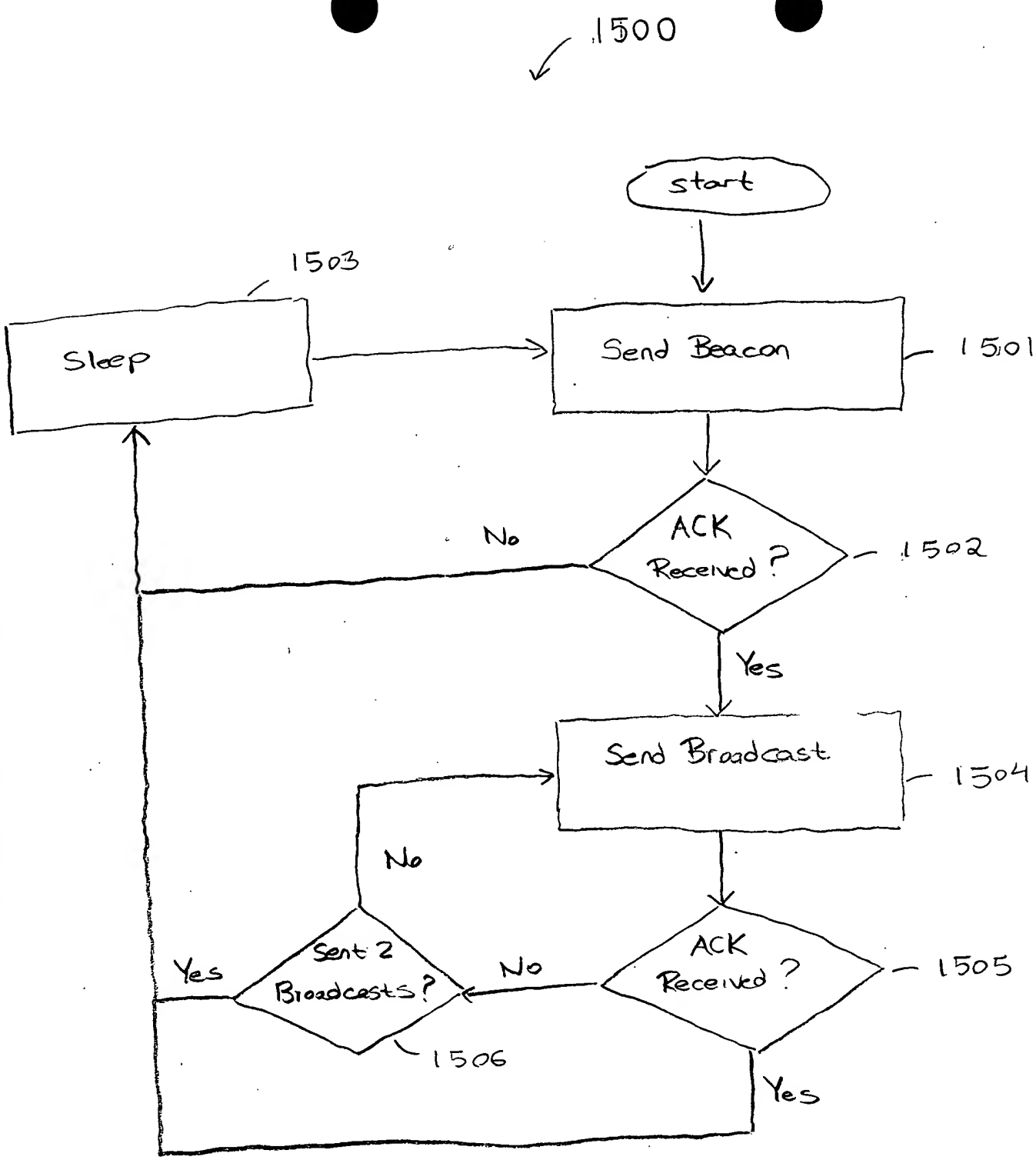

1500
start
1503
Sleep
Send Beacon
1501
ACK Received ?
1502
No
Yes
Send Broadcast
1504
No
Sent 2 Broadcasts?
Yes
No
ACK Received ?
1505
1506
Yes

Fig. 15

No ACK Received After Sending Beacon

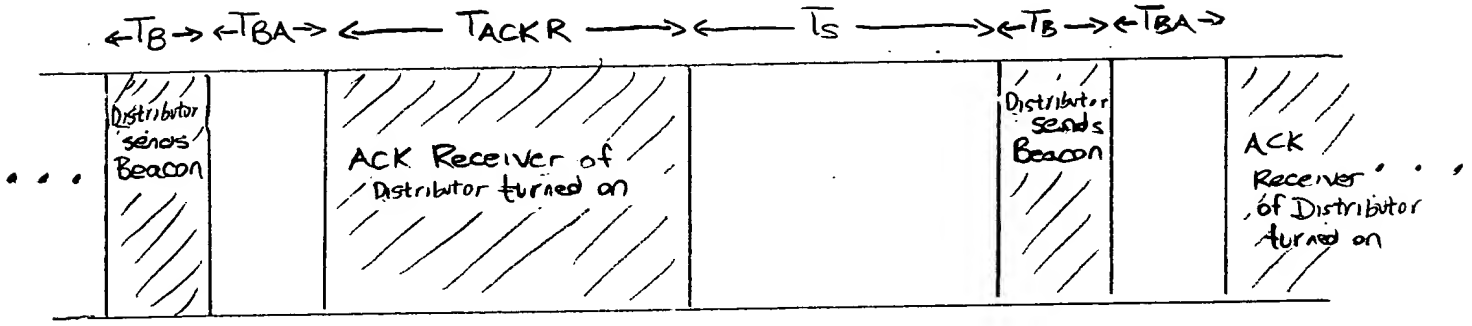


Fig. 16

ACK Received After Sending Beacon

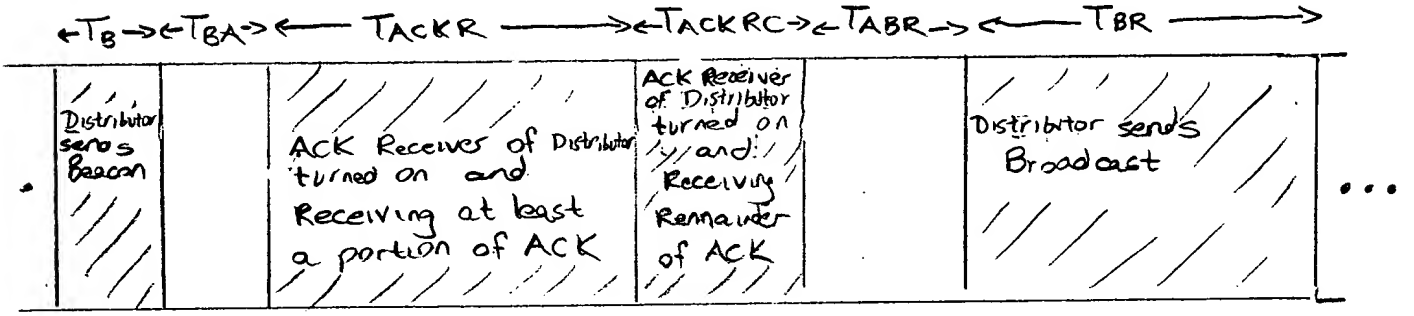


Fig. 17

No ACK Received After Sending Broadcast

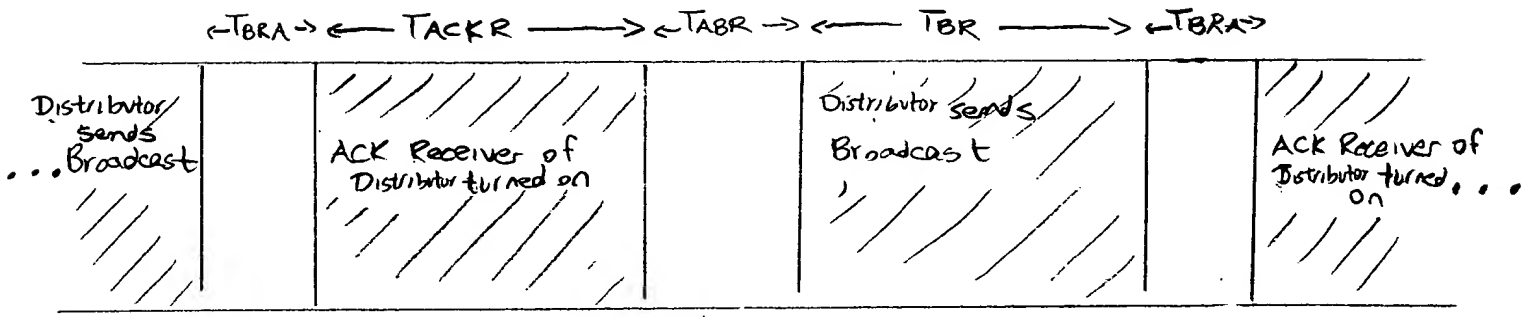


Fig. 18

ACK Received After Sending Broadcast

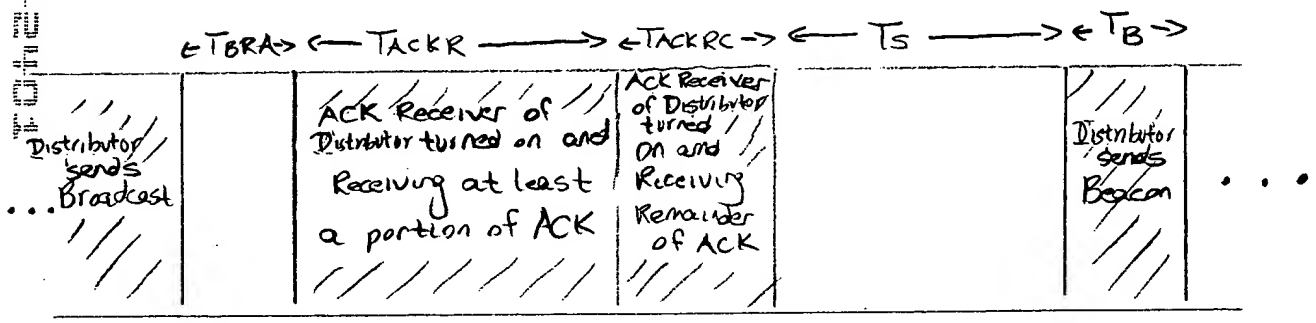


Fig. 19

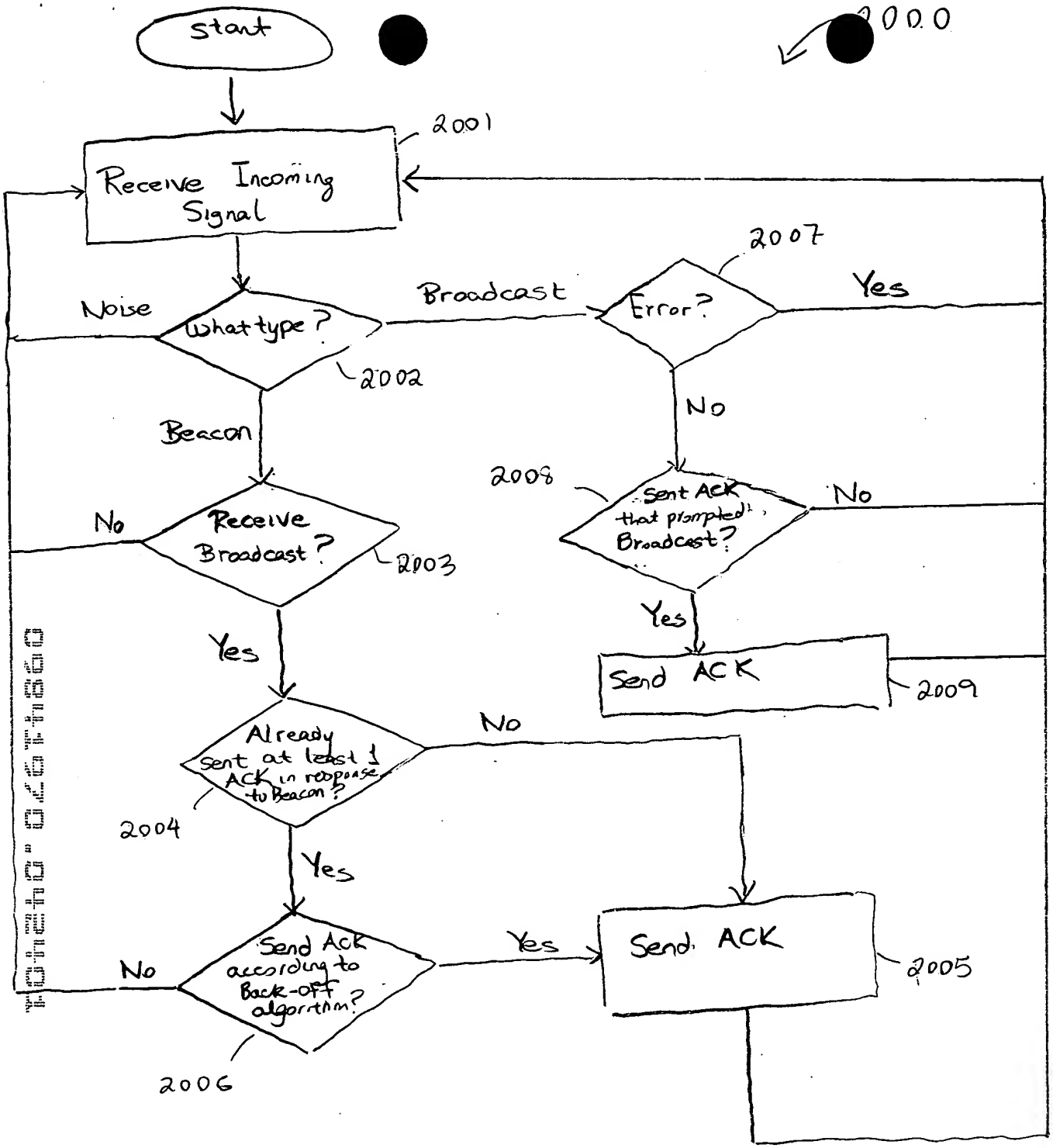

Start
2000
2001
Receive Incoming Signal
What type?
Noise
Broadcast
Beacon
2002
Error?
2007
Yes
No
Receive Broadcast?
No
2003
Yes
Sent ACK that prompted Broadcast?
2008
No
Yes
Send ACK
2009
Already sent at least 1 ACK in response to Beacon?
No
2004
Yes
Send Ack according to Back-off algorithm?
No
2006
Yes
Send ACK
2005

Fig. 20

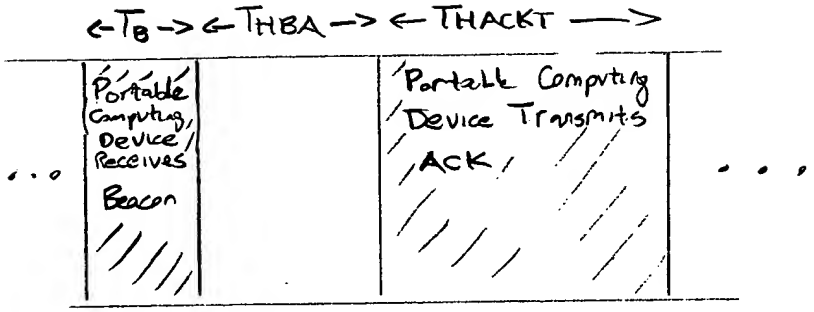

←TB→ ←THBA→ ←THACKT →
Portable Computing Device Receives Beacon
Portable Computing Device Transmits ACK

Fig. 21

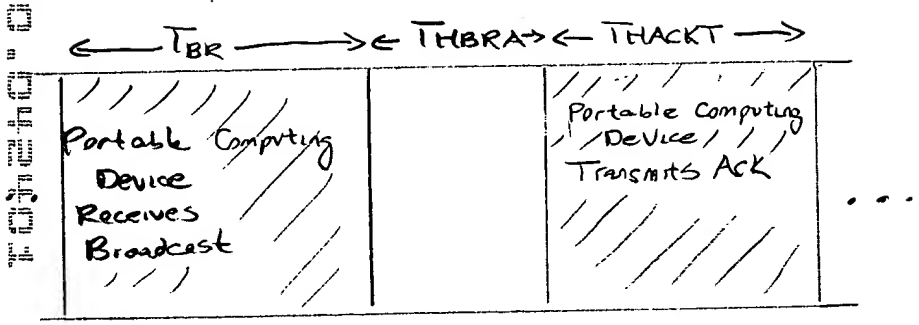

←TBR→ ←THBRA→ ←THACKT →
Portable Computing Device Receives Broadcast
Portable Computing Device Transmits ACK

Fig. 22.

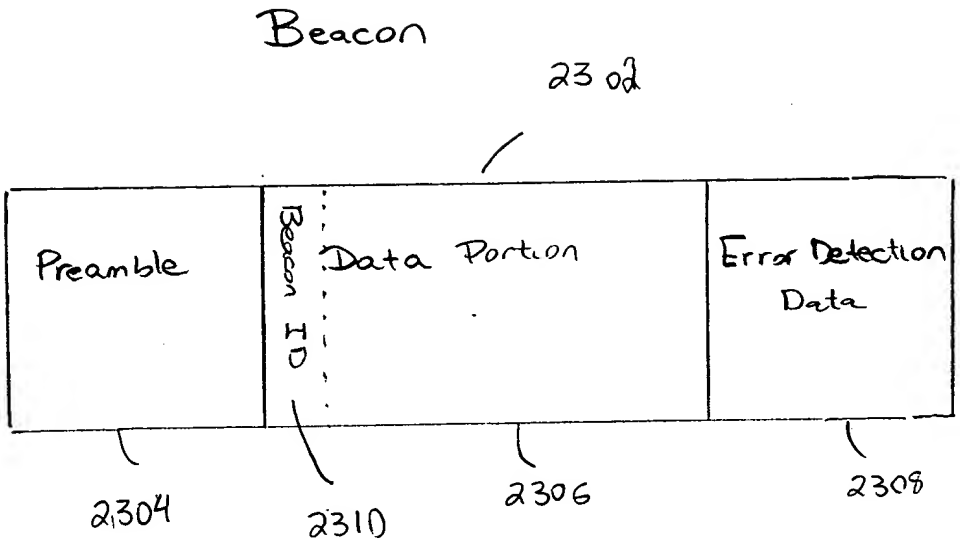

Beacon
2302
Preamble
Beacon HD
Data Portion
Error Detection Data
2304
2310
2306
2308

Fig. 23

ACK

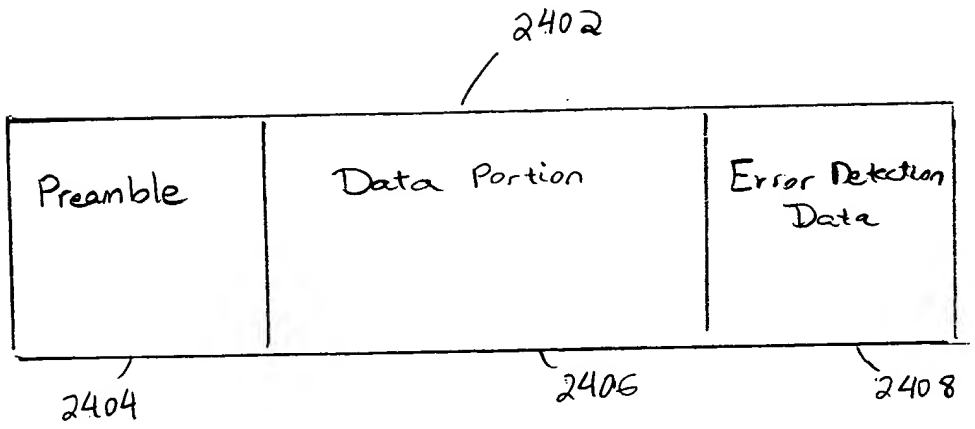

2402
Preamble
Data Portion
Error Detection Data
2404
2406
2408

Fig. 24

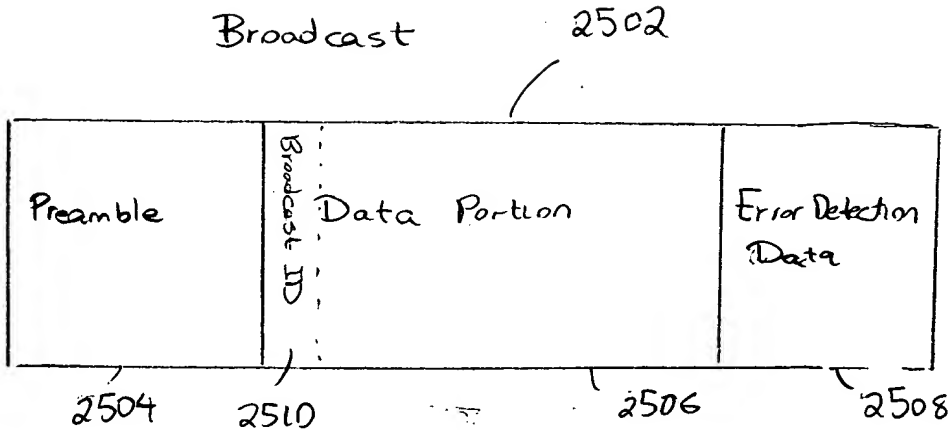


Fig. 25

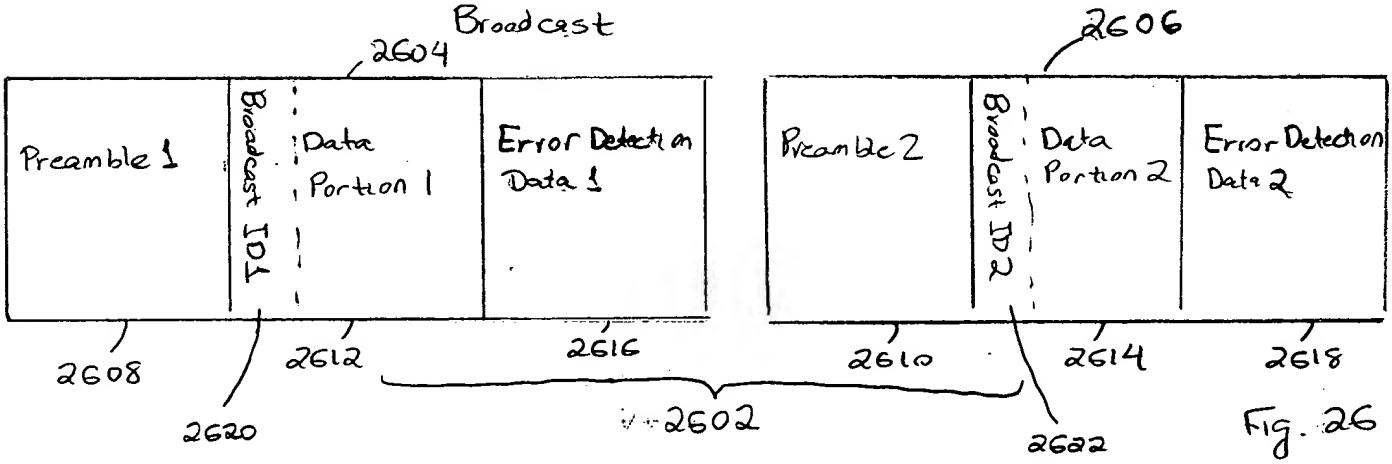


Fig. 26

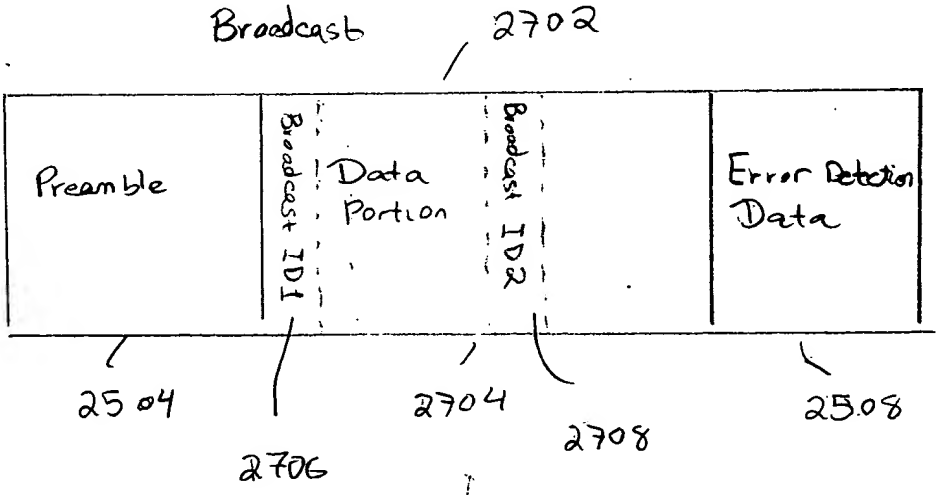


Fig. 27

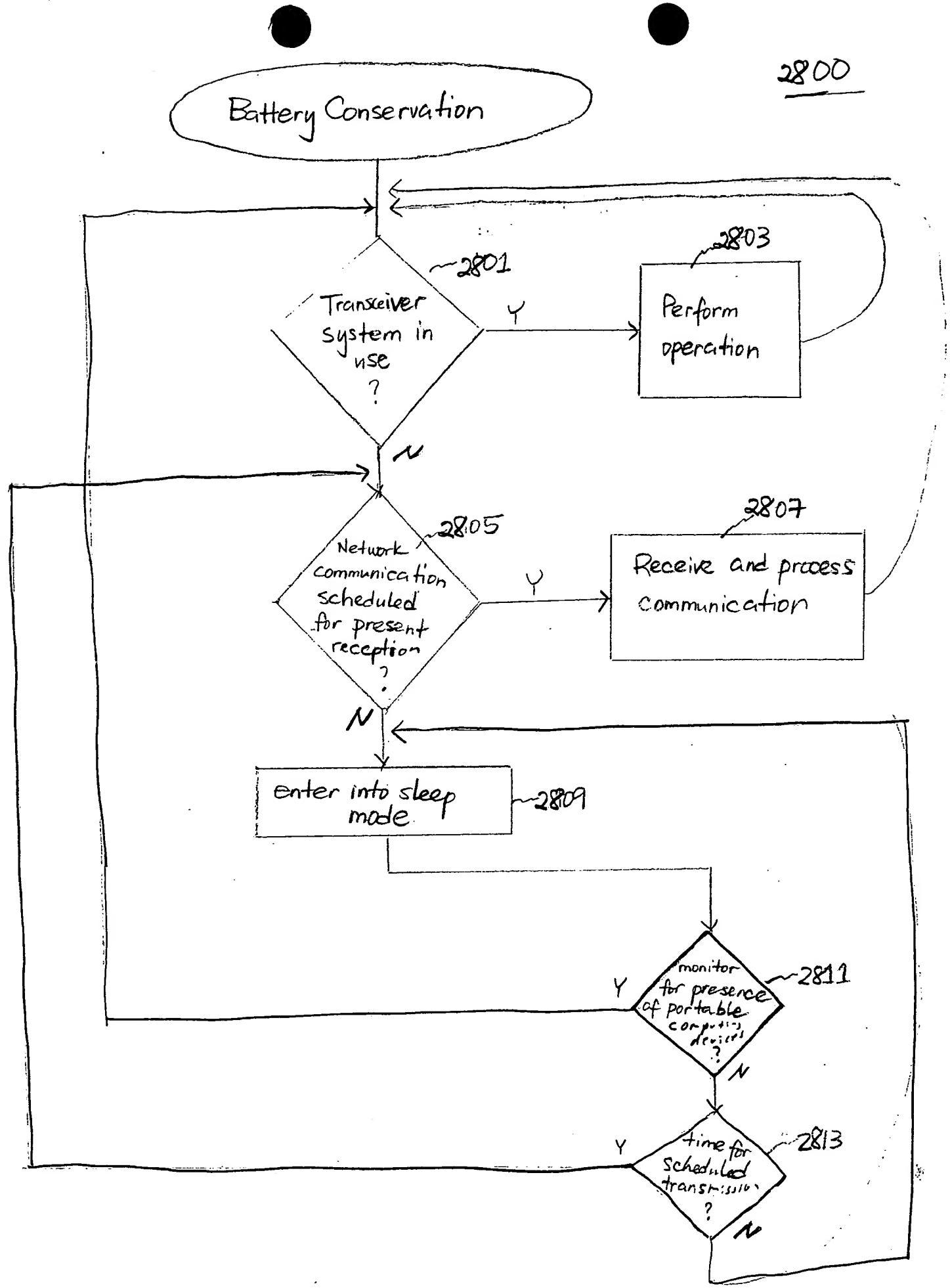

2800
Battery Conservation
2801
Transceiver system in use ?
Y
2803
Perform operation
N
2805
Network communication scheduled for present reception ?
Y
2807
Receive and process communication
N
enter into sleep mode
2809
monitor for presence of portable computing devices ?
2811
Y
N
time for scheduled transmission ?
2813
Y
N

Fig. 28

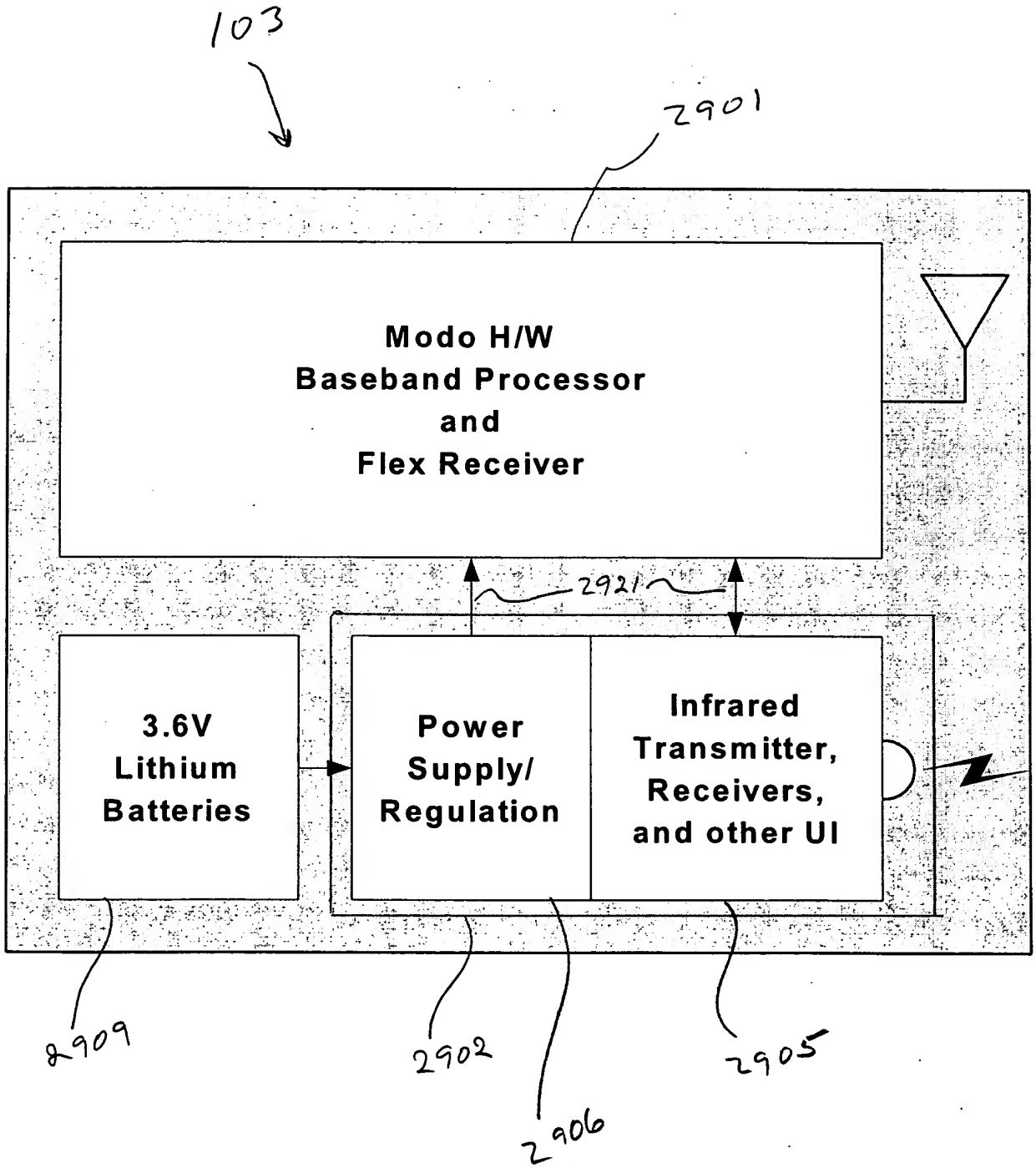

103
2901
Modo H/W
Baseband Processor
and
Flex Receiver
2921
3.6V
Lithium
Batteries
Power
Supply/
Regulation
Infrared
Transmitter,
Receivers,
and other UI
2909
2902
2906
2905

Fig. 29

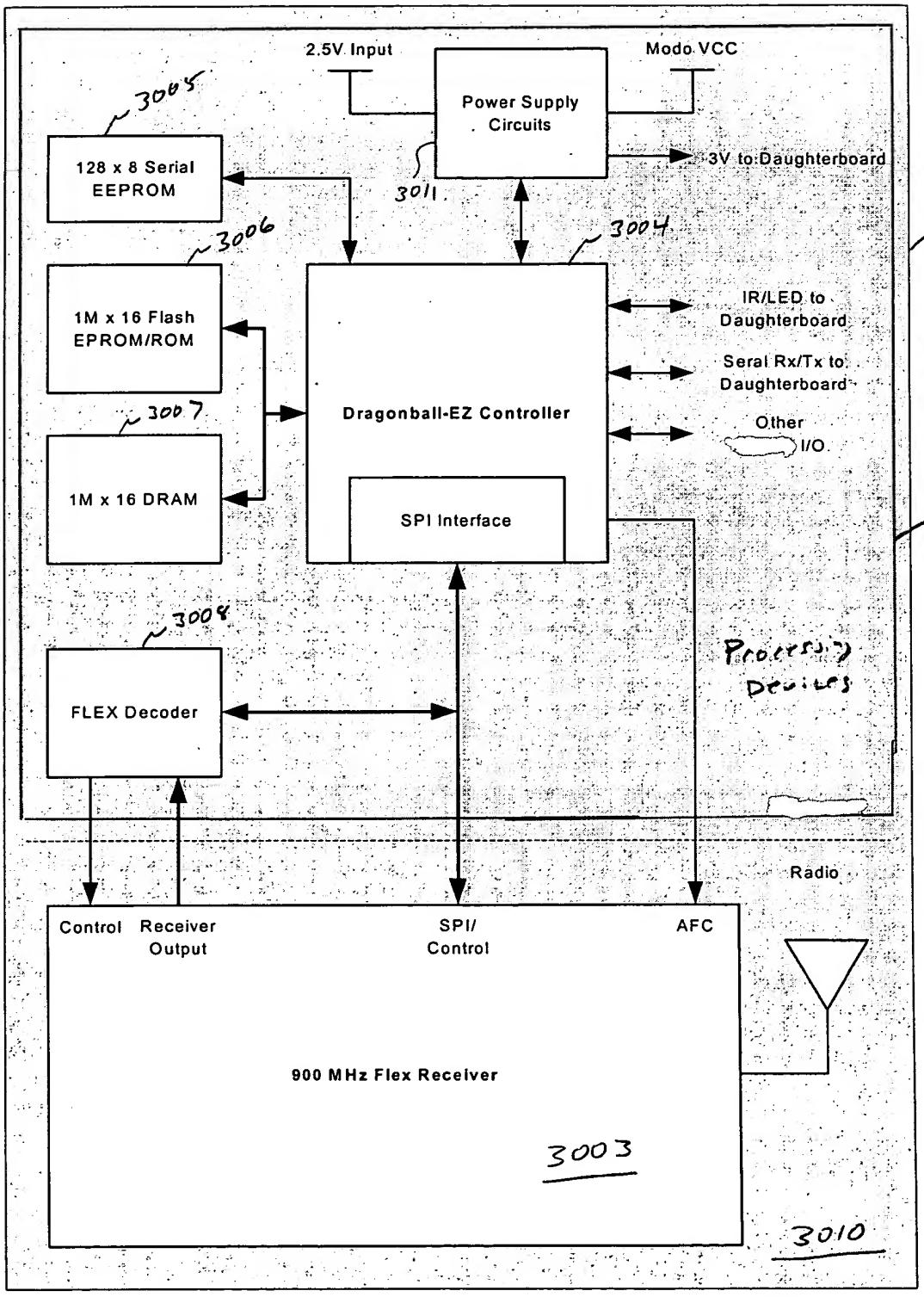

2.5V Input
Modo VCC
Power Supply Circuits
3V to Daughterboard
3011
3005
128 x 8 Serial EEPROM
3006
1M x 16 Flash EPROM/ROM
3007
1M x 16 DRAM
3004
Dragonball-EZ Controller
SPI Interface
IR/LED to Daughterboard
Seral Rx/Tx to Daughterboard
Other I/O
2901
3012
3008
FLEX Decoder
Radio
Control
Receiver Output
SPI/ Control
AFC
900 MHz Flex Receiver
3003
3010

Fig. 30

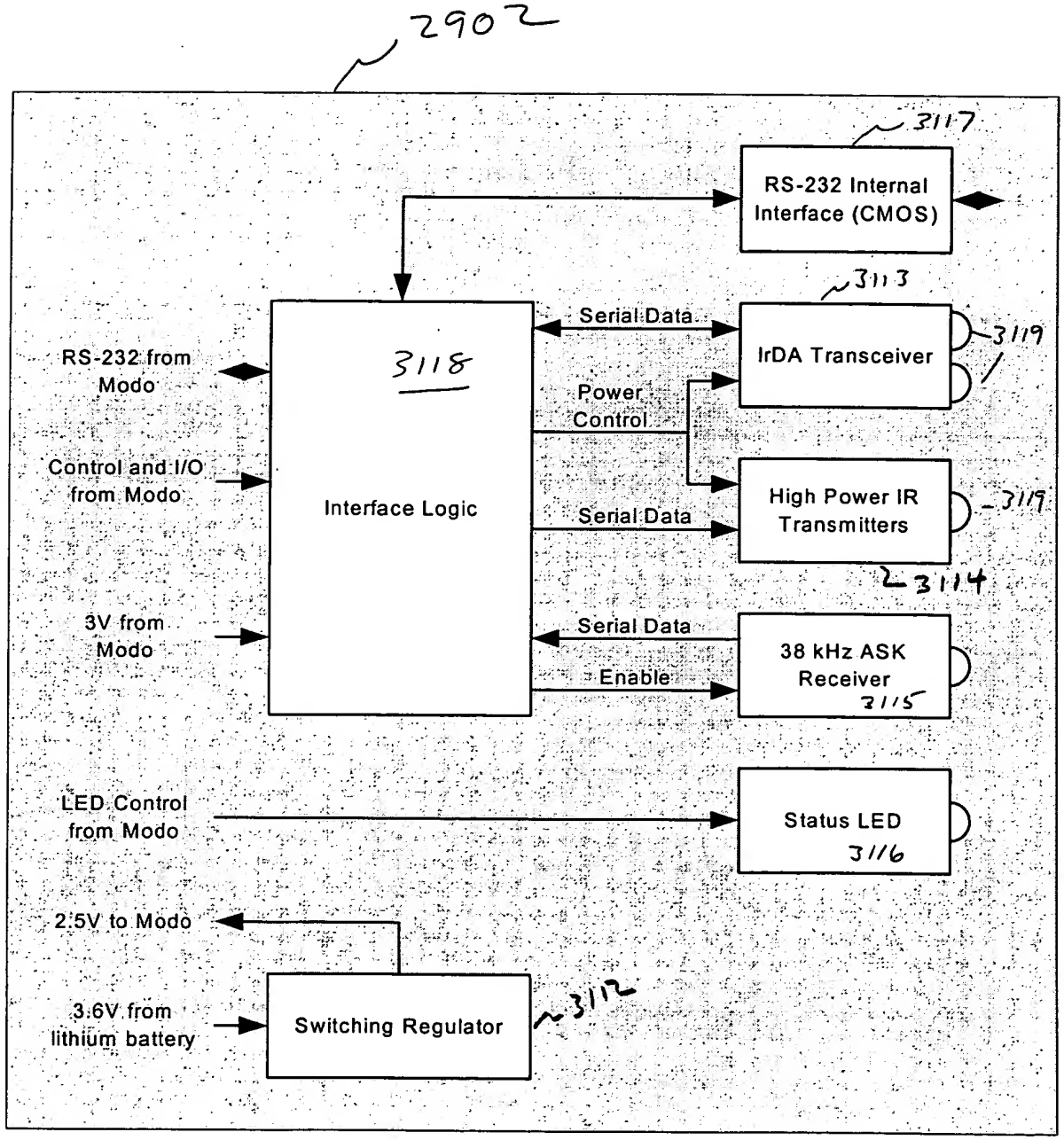
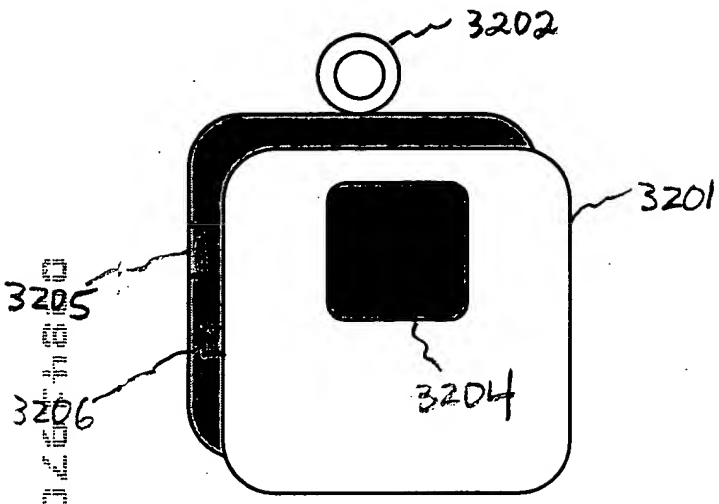
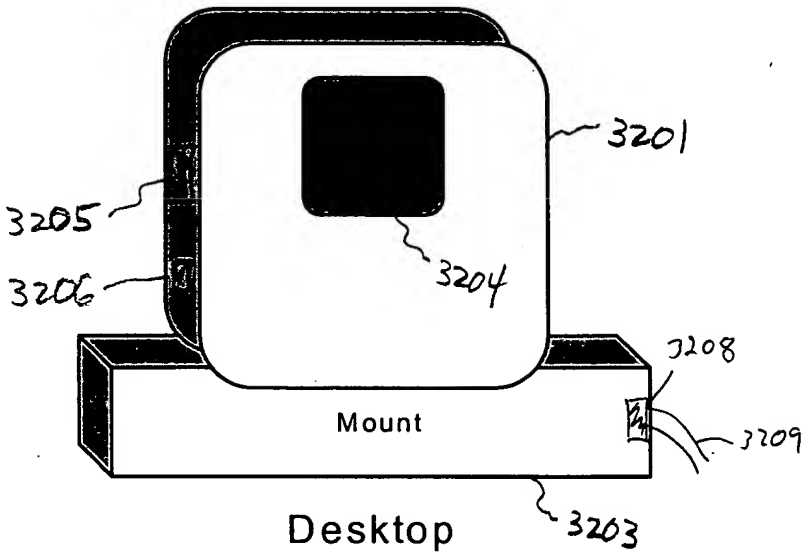

2902
3117
RS-232 Internal Interface (CMOS)
3113
Serial Data
IrDA Transceiver
3119
RS-232 from Modo
3118
Power Control
Control and I/O from Modo
Interface Logic
High Power IR Transmitters
3119
Serial Data
3114
3V from Modo
Serial Data
38 kHz ASK Receiver
Enable
3115
LED Control from Modo
Status LED
3116
2.5V to Modo
3.6V from lithium battery
Switching Regulator
3112

Fig. 31



Wall Mount

Fig. 32A



Desktop

Fig. 32B

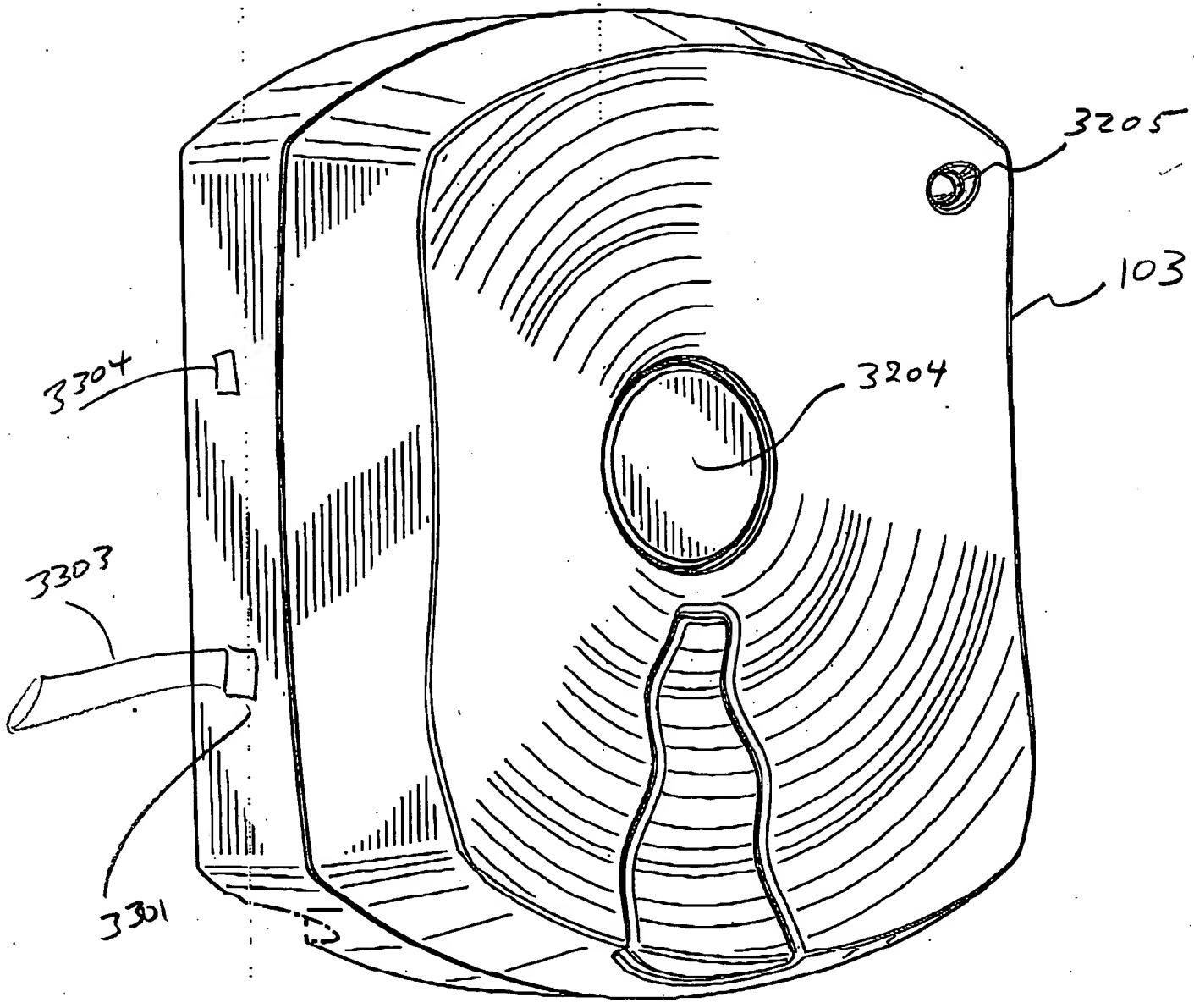


Fig. 33A

LOOKS & TIPS

3305

"It's not about rules. It's about what works for you."

BRIDAL

BLACK TIE

AFRICAN AMERICAN

LATINA

GREAT FACES

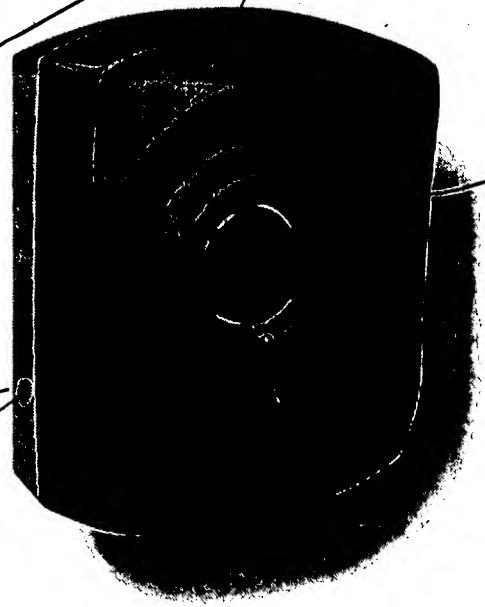
COOL STEEL CREAMY NUDE OPAL SHINE

ASIAN

TEEN

AGELESS BEAUTY

BUY SOME TODAY



103

3204

3307

3306

3302

FIG 33B

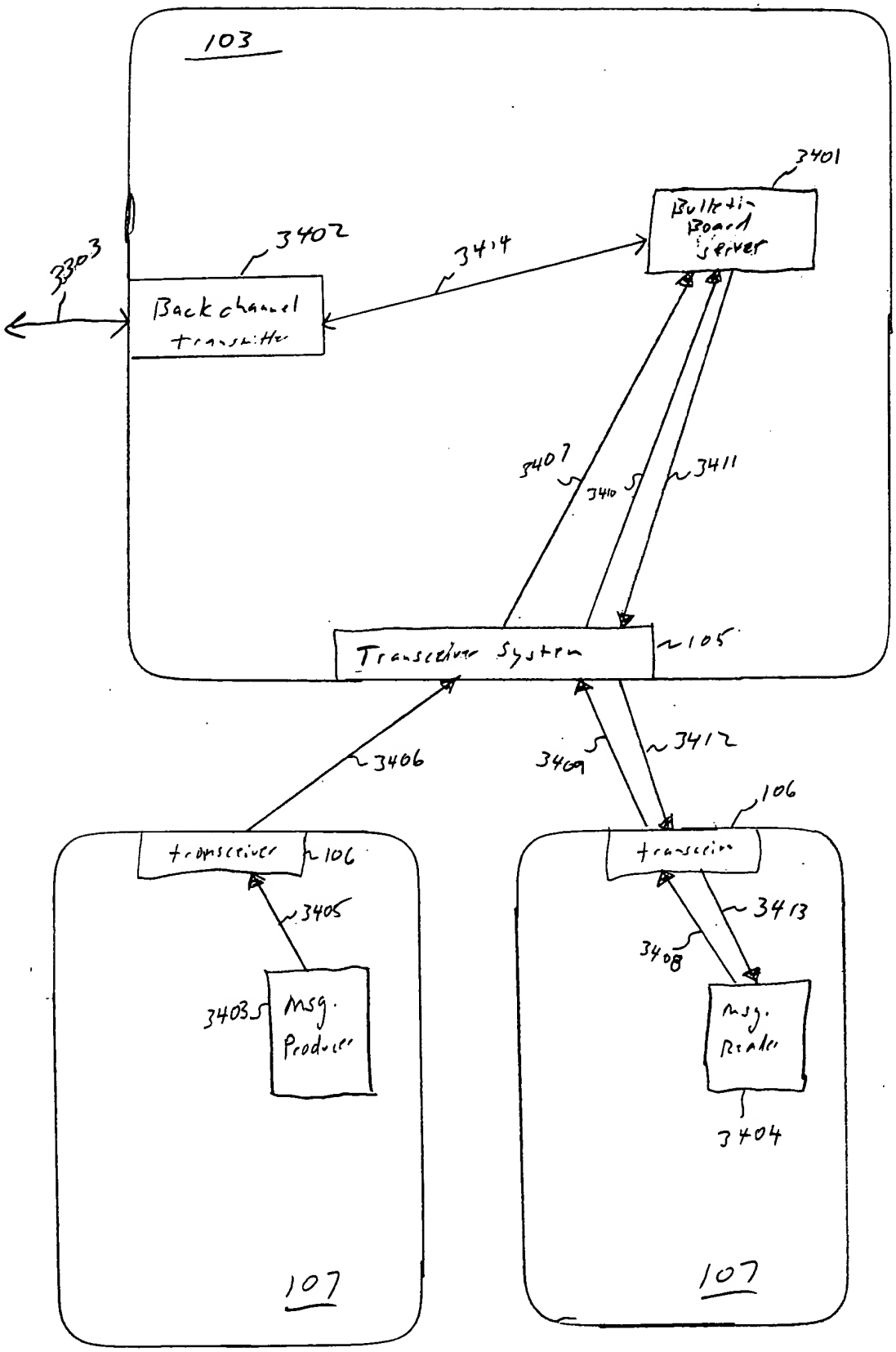

103
3401
Bulletin Board Server
3402
3303
3414
Backchannel transmitter
3407
3410
3411
Transceiver System
105
3406
3409
3412
106
transceiver
106
3405
3403
Msg. Producer
107
transceiver
3413
3408
Msg. Reader
3404
107

FIG. 34

3500

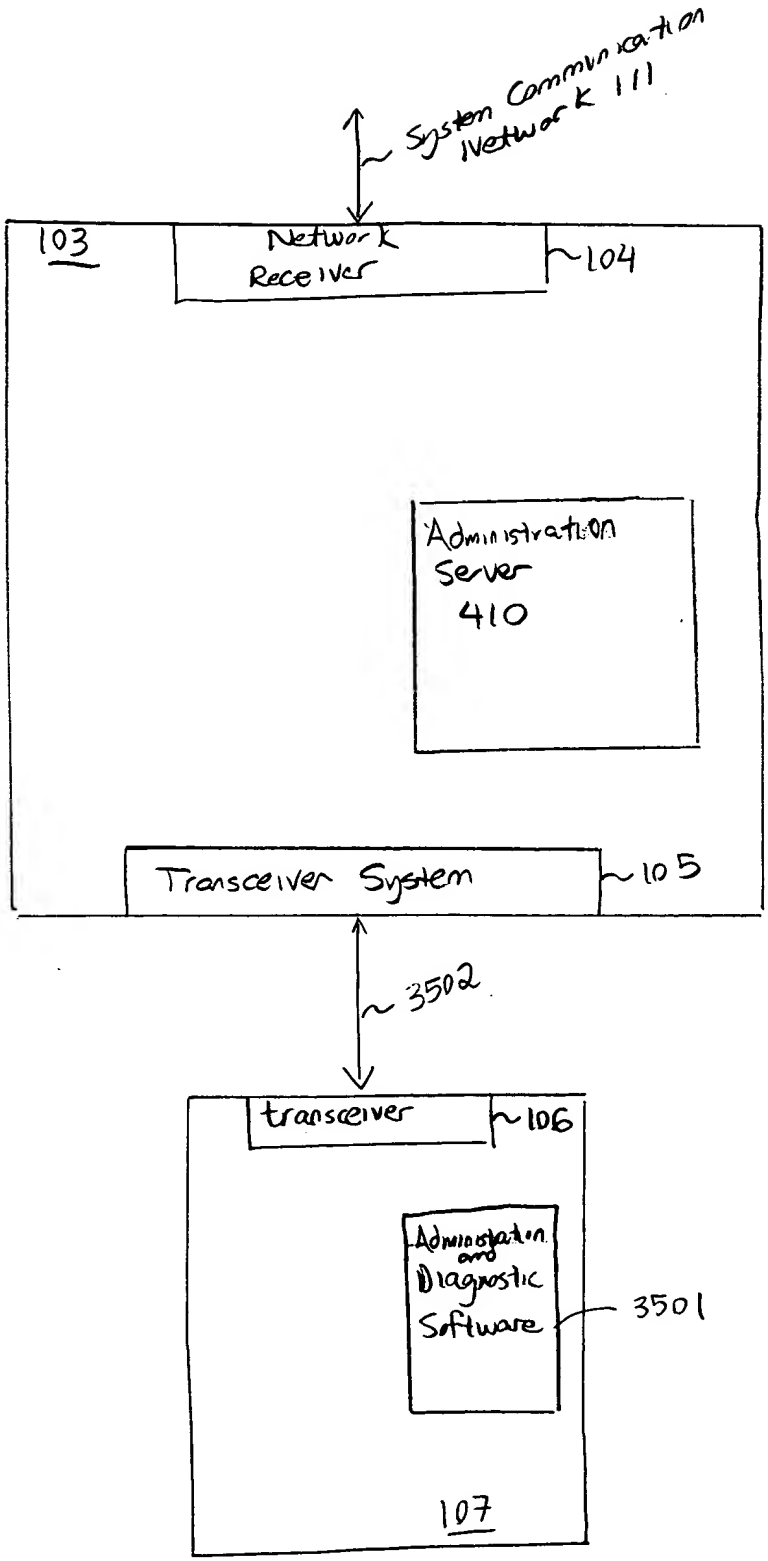

System Communication Network 111
103
Network Receiver
104
Administration Server 410
Transceiver System
105
3502
transceiver
106
Administration and Diagnostic Software
3501
107

Fig. 35